Climate tipping points and their potential impact on drinking water supply planning and management in Europe - Supplementary material

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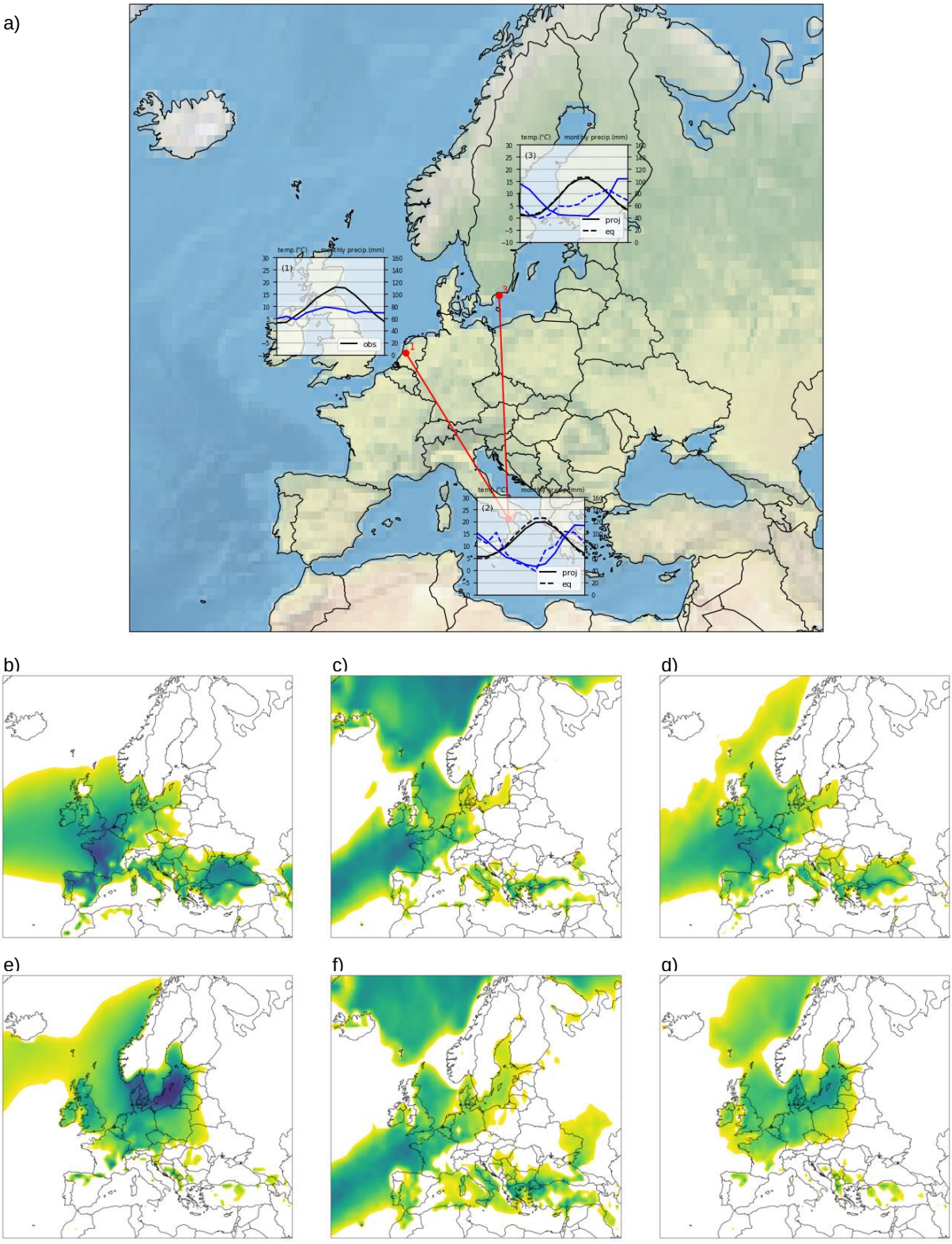

Figure S1: Equivalent climate locations for Amsterdam for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

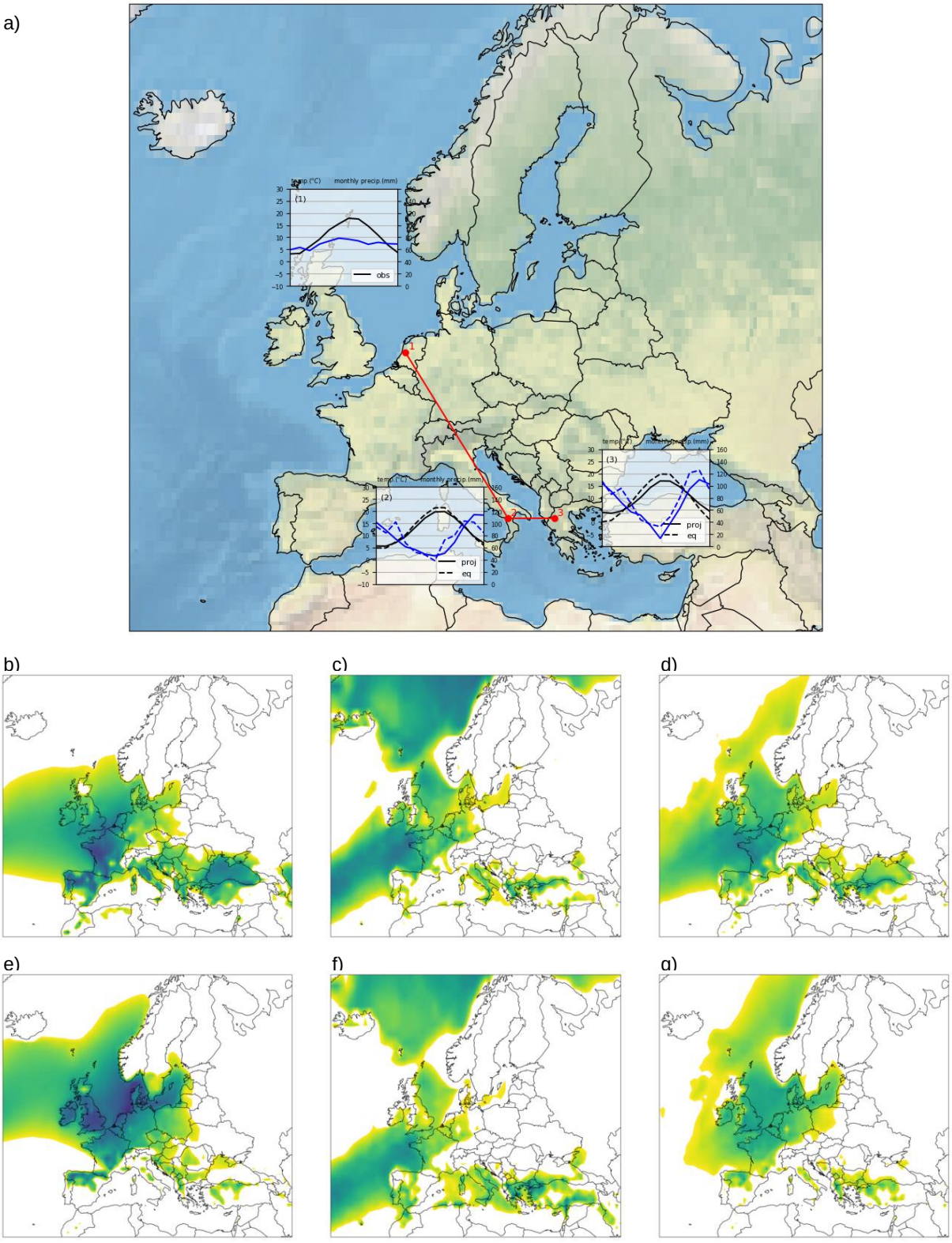

Figure S2: Equivalent climate locations for Amsterdam for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

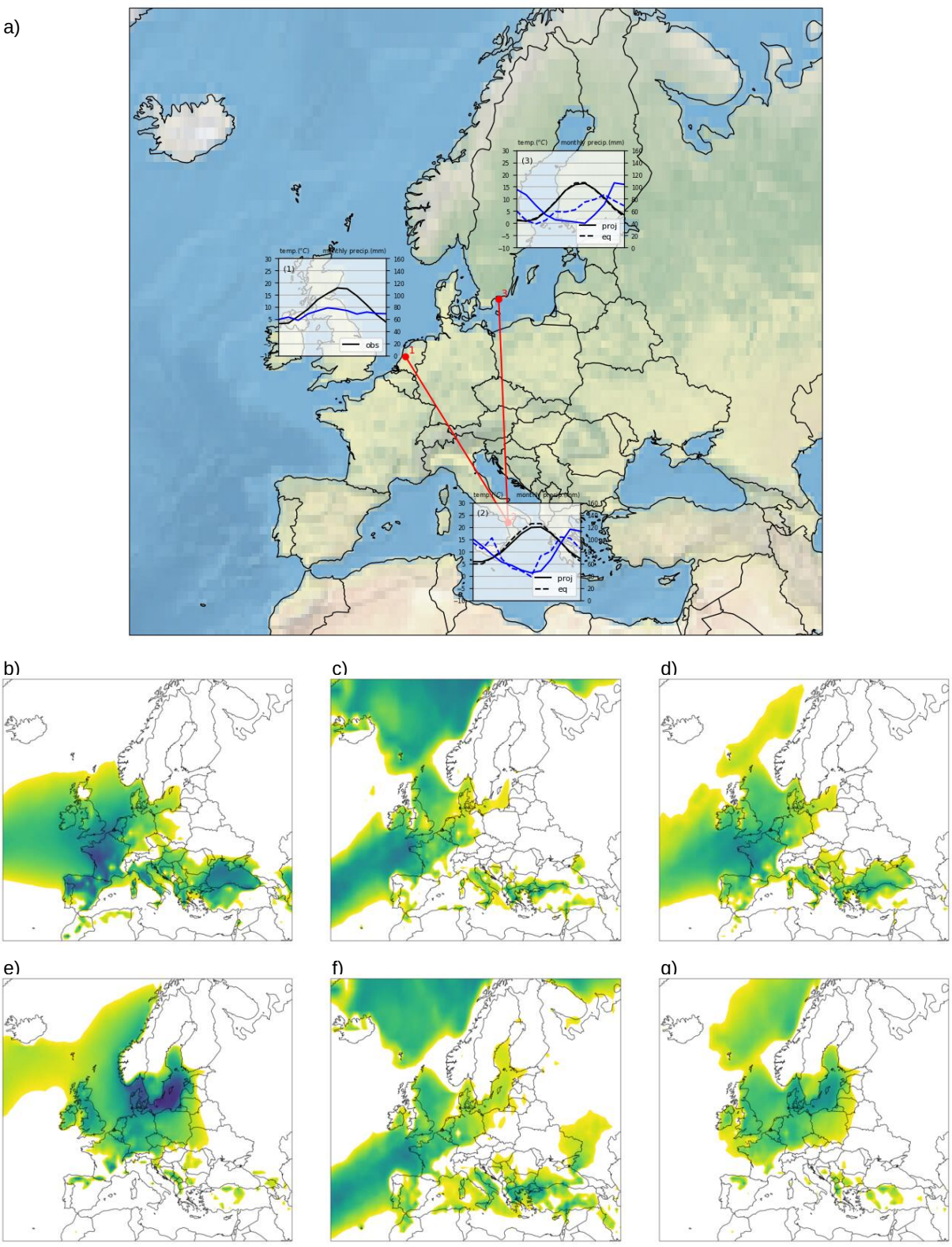

Figure S3: Equivalent climate locations for Amsterdam for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

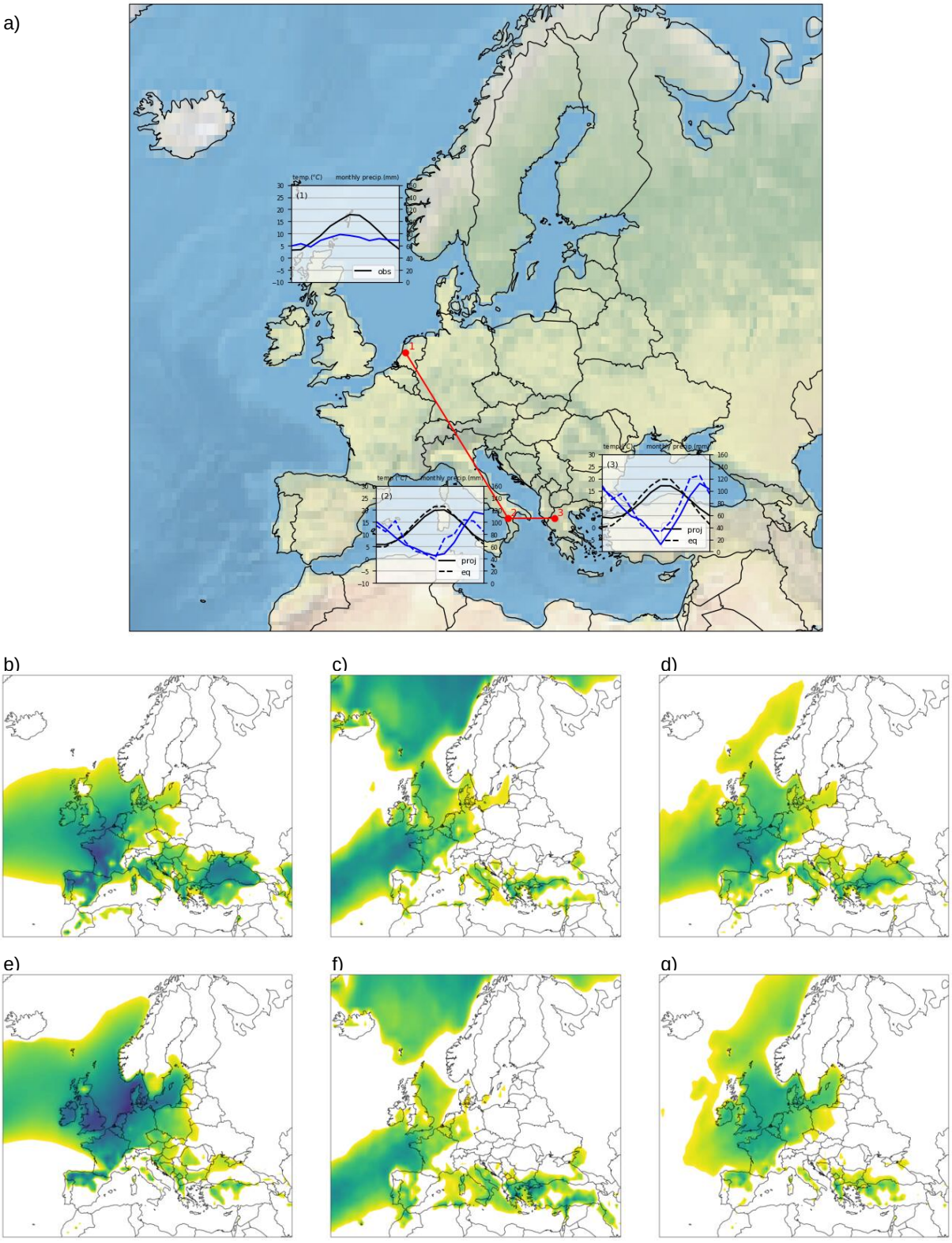

Figure S4: Equivalent climate locations for Amsterdam for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

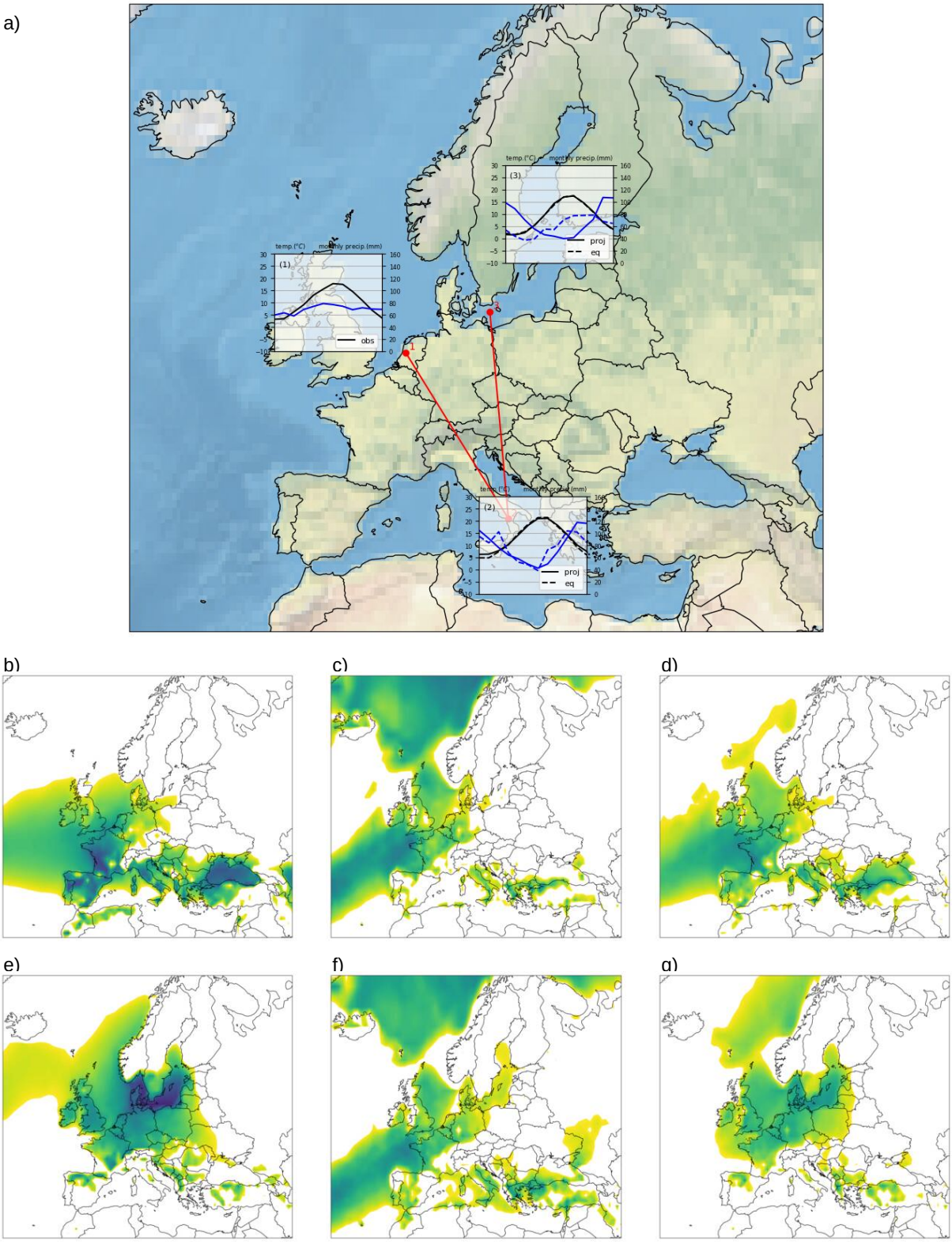

Figure S5: Equivalent climate locations for Amsterdam for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

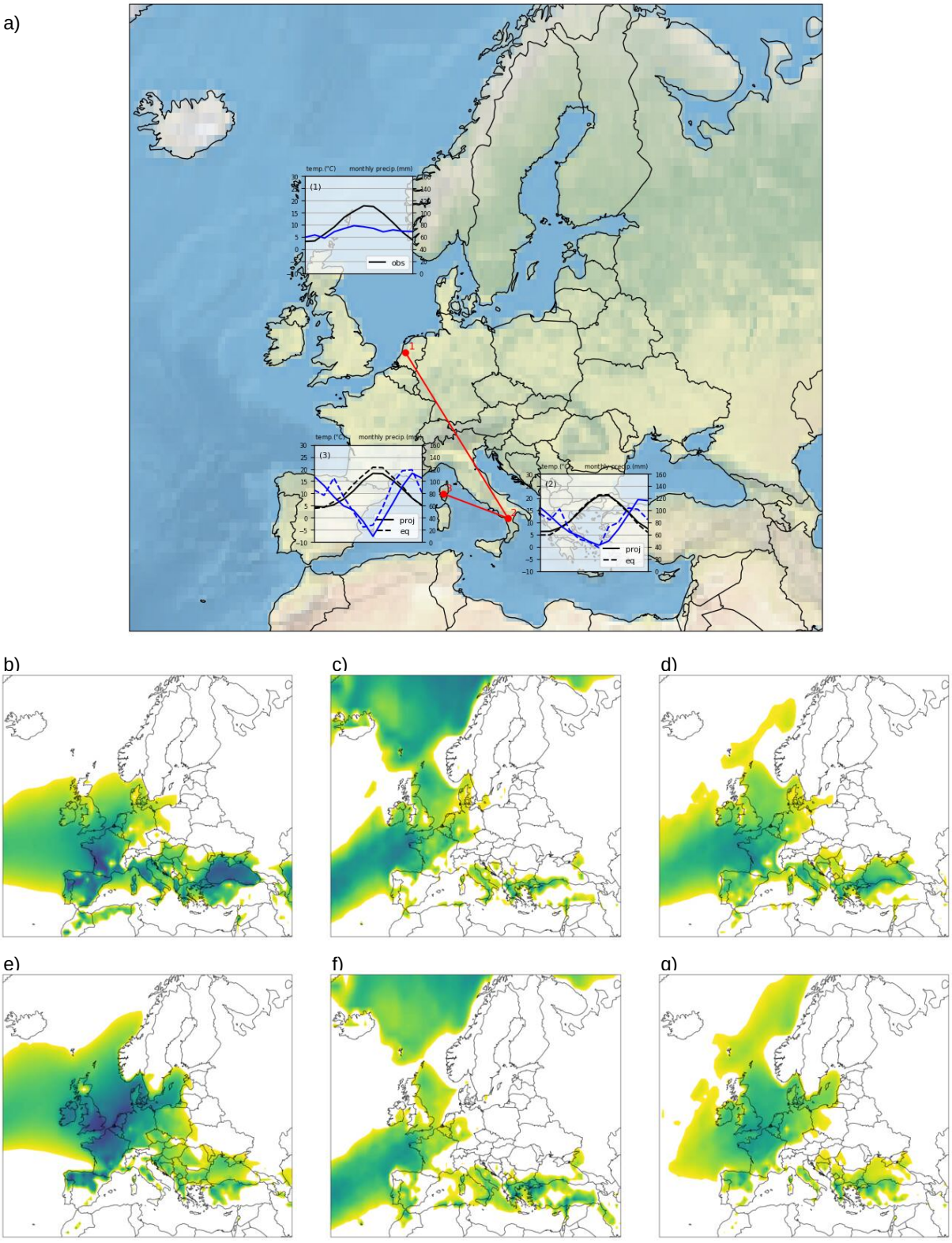

Figure S6: Equivalent climate locations for Amsterdam for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

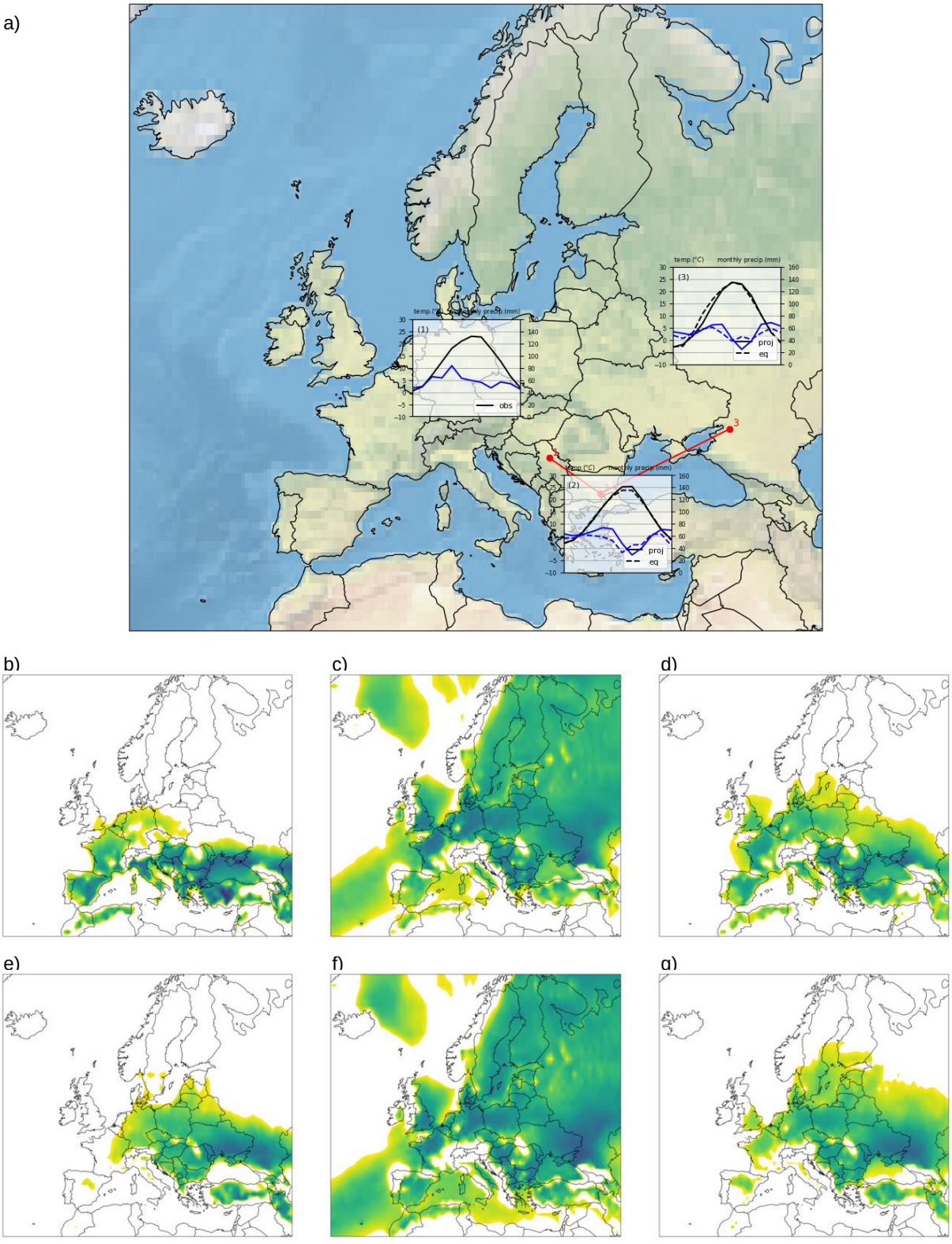

Figure S7: Equivalent climate locations for Belgrade for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

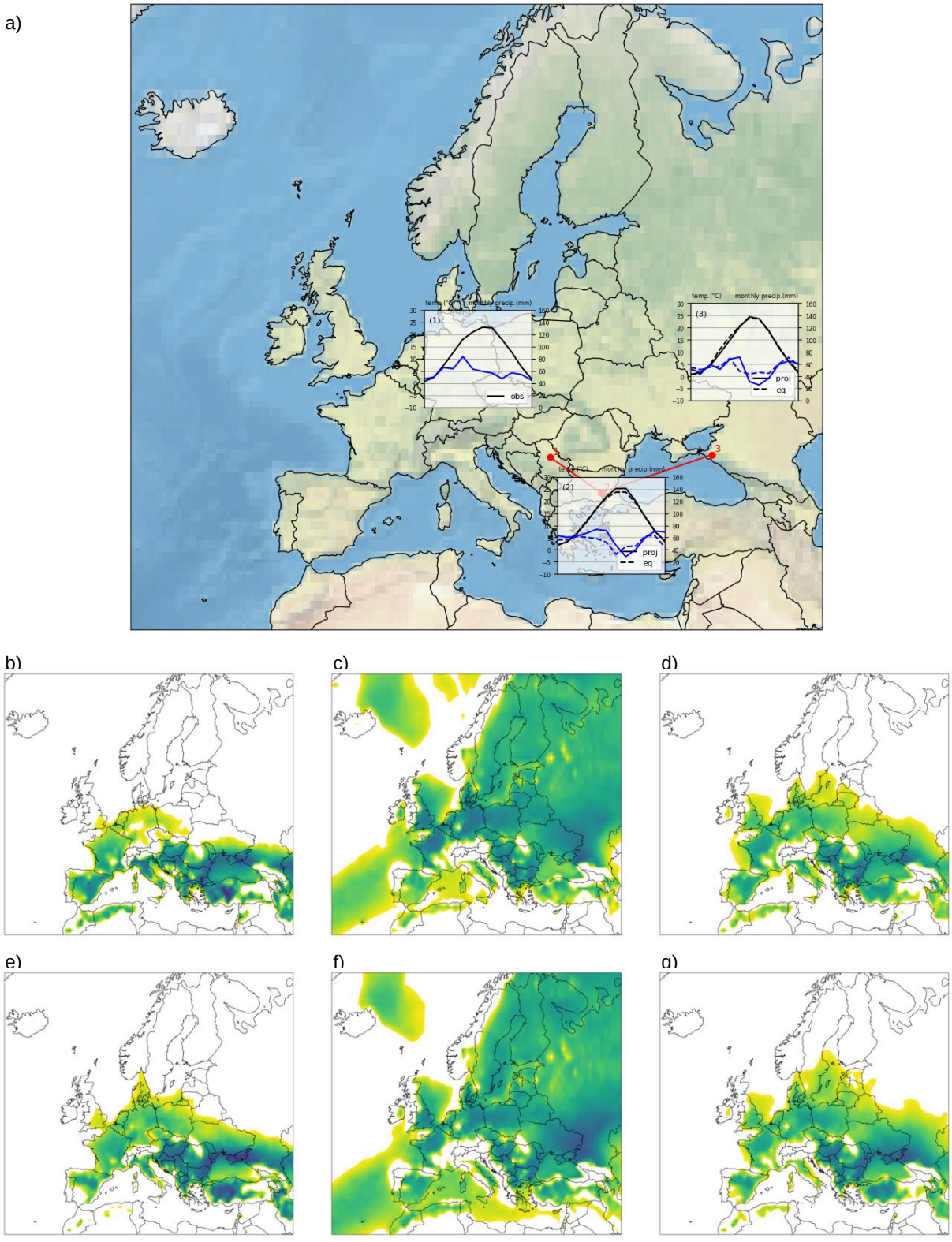

Figure S8: Equivalent climate locations for Belgrade for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

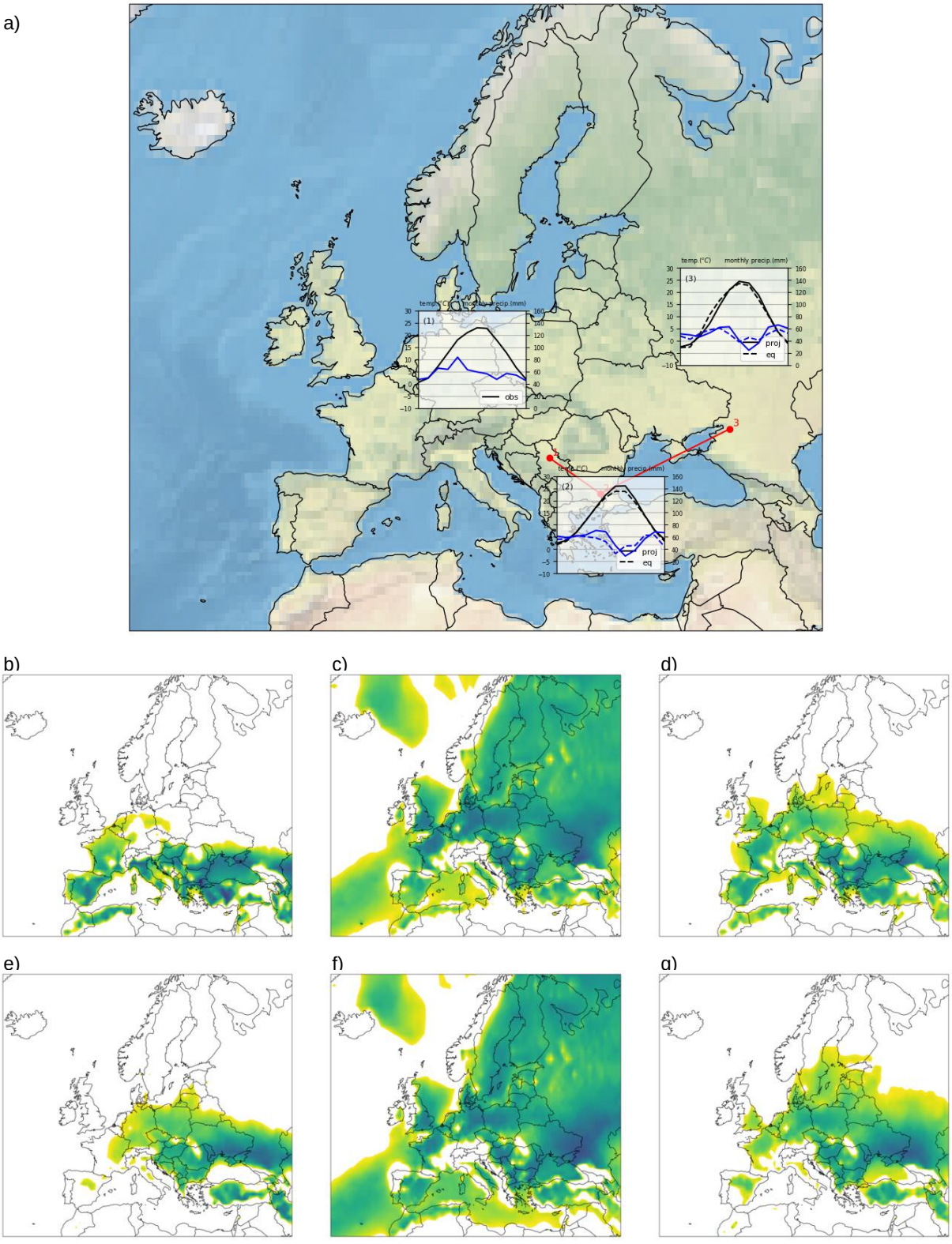

Figure S9: Equivalent climate locations for Belgrade for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

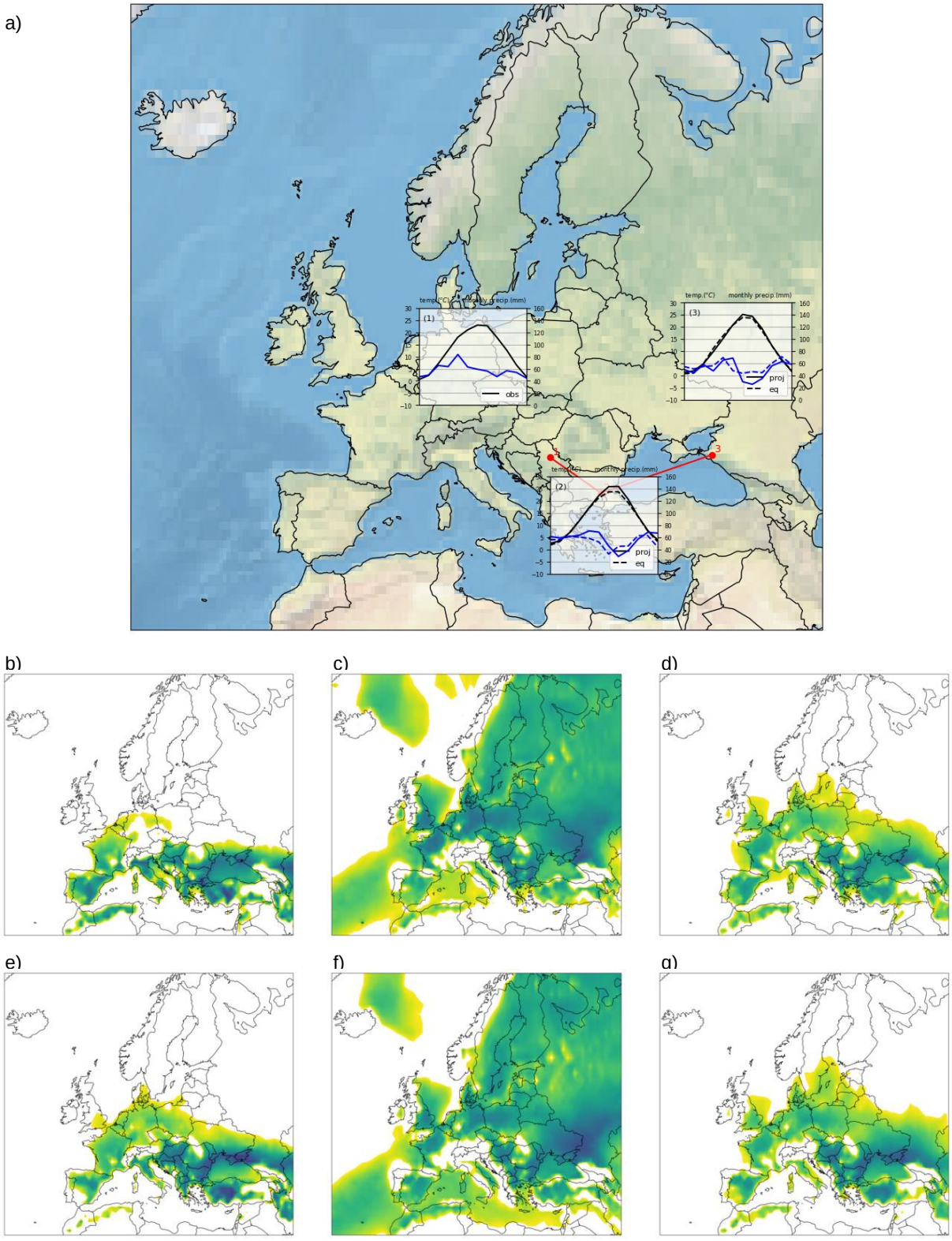

Figure S10: Equivalent climate locations for Belgrade for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

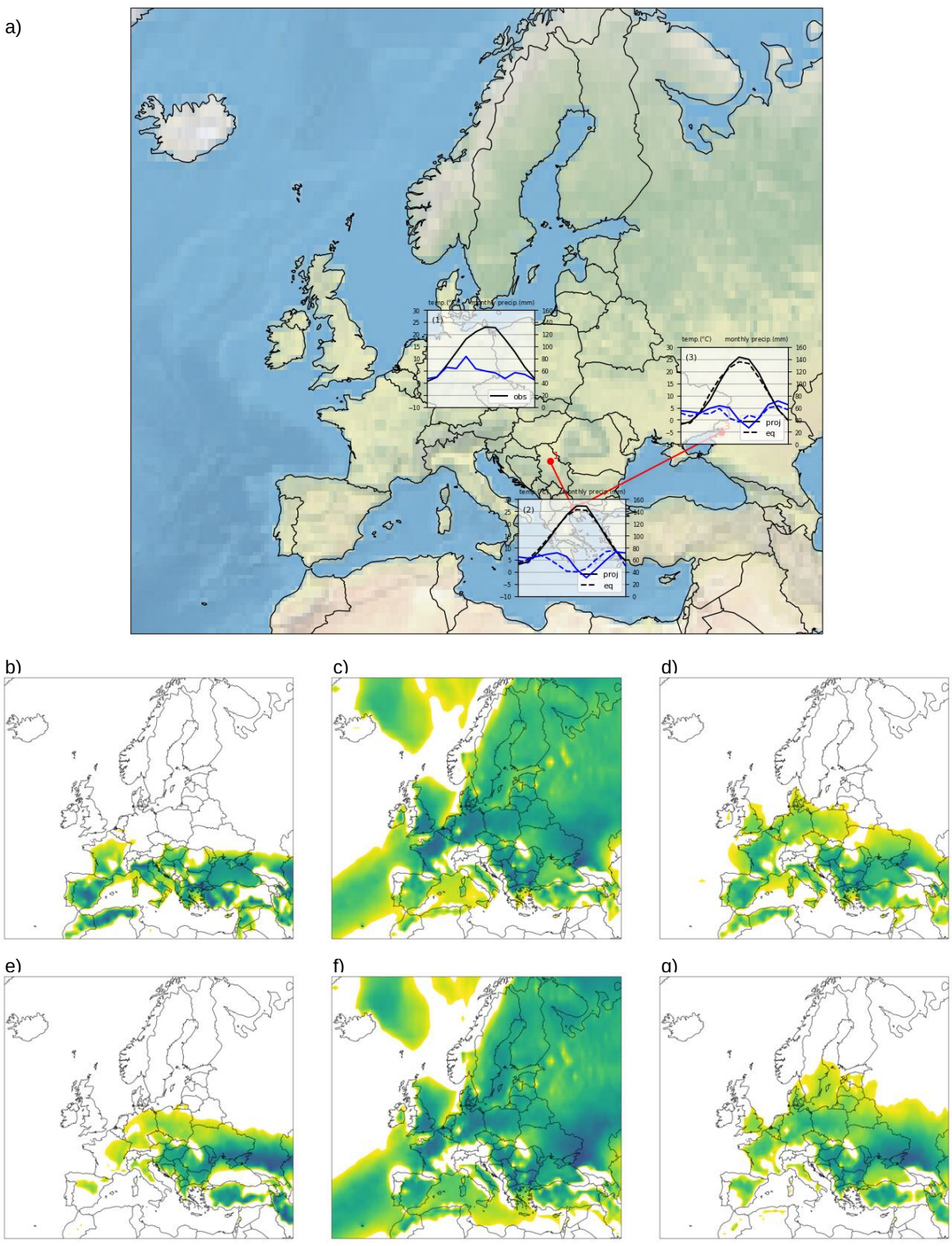

Figure S11: Equivalent climate locations for Belgrade for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

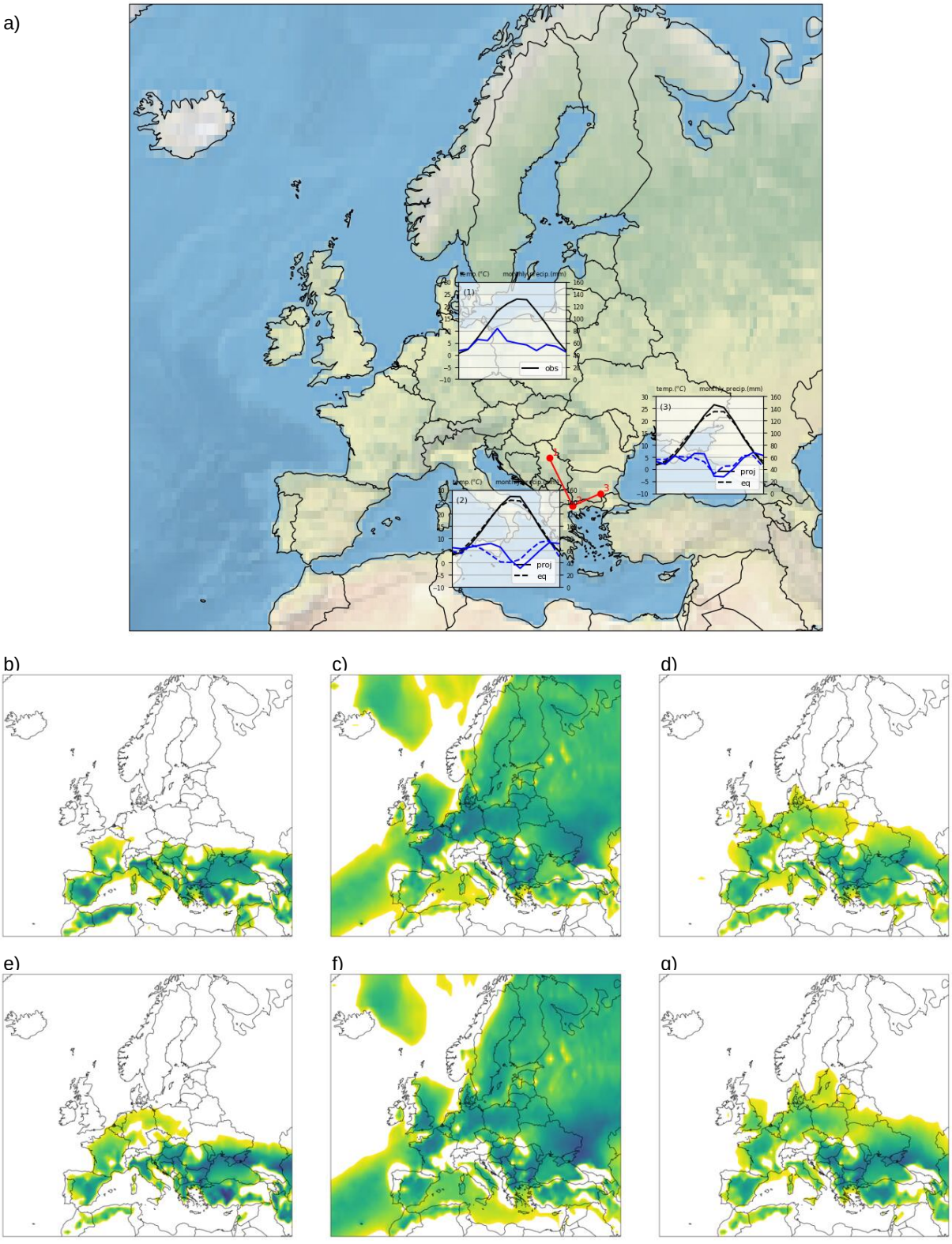

Figure S12: Equivalent climate locations for Belgrade for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

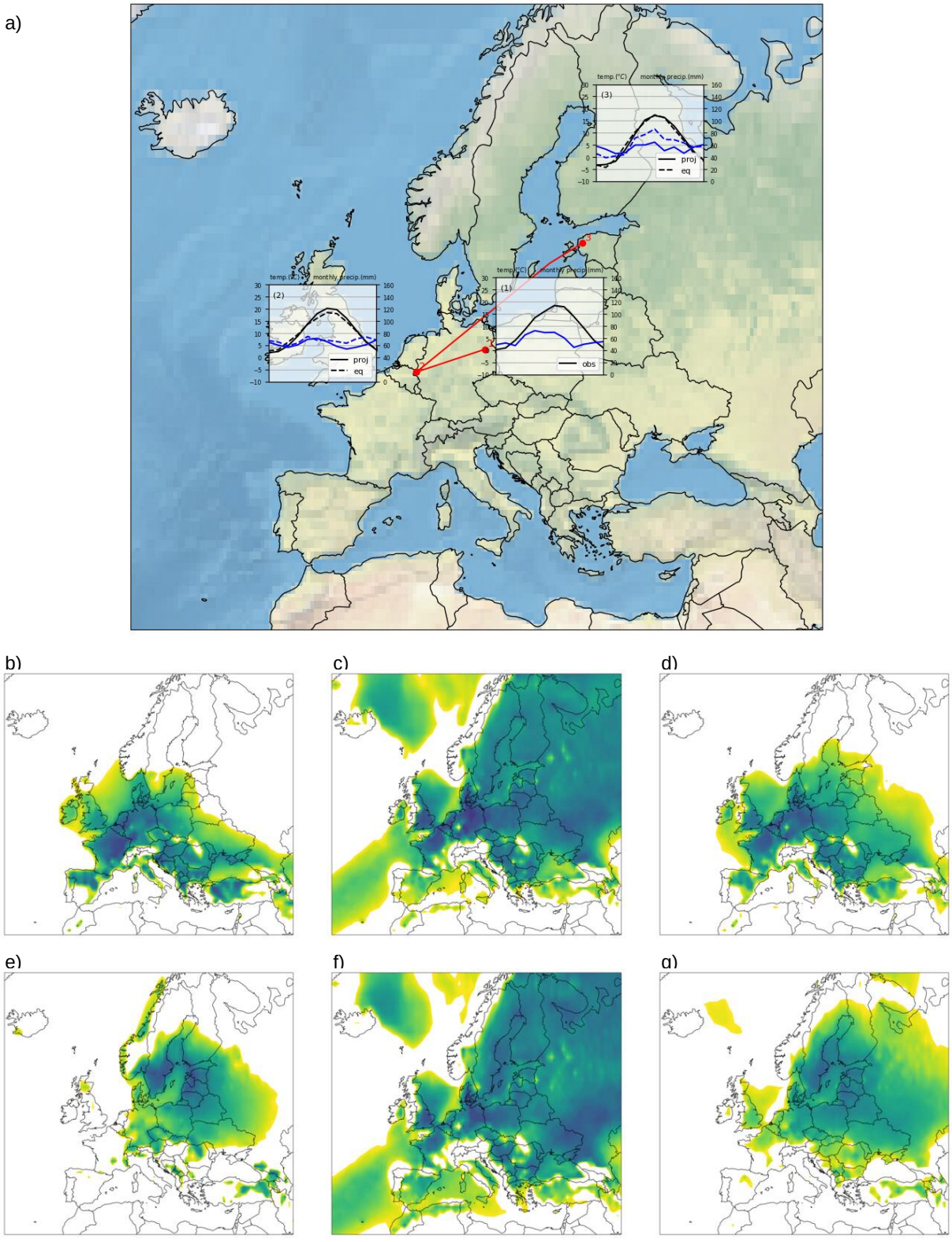

Figure S13: Equivalent climate locations for Berlin for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

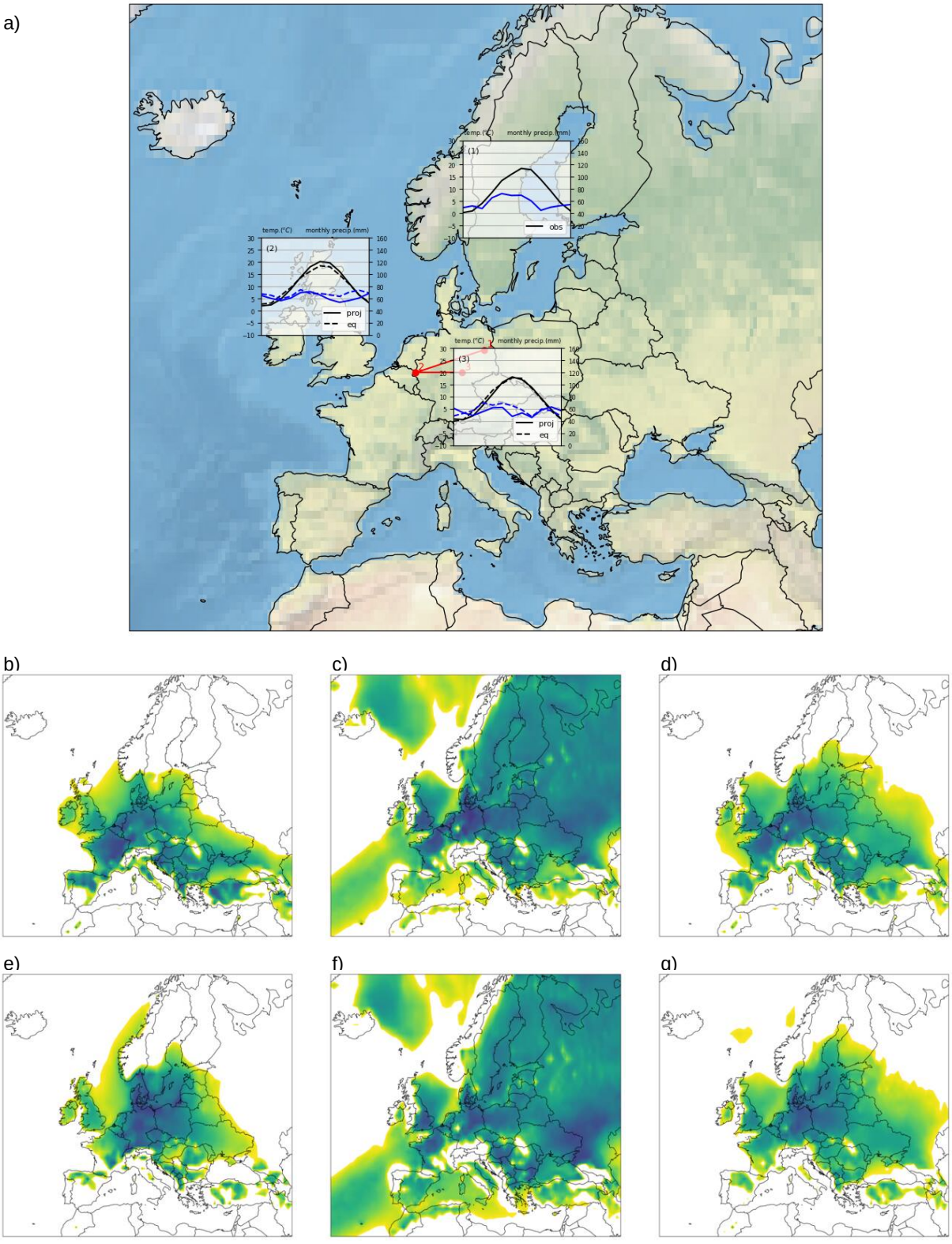

Figure S14: Equivalent climate locations for Berlin for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

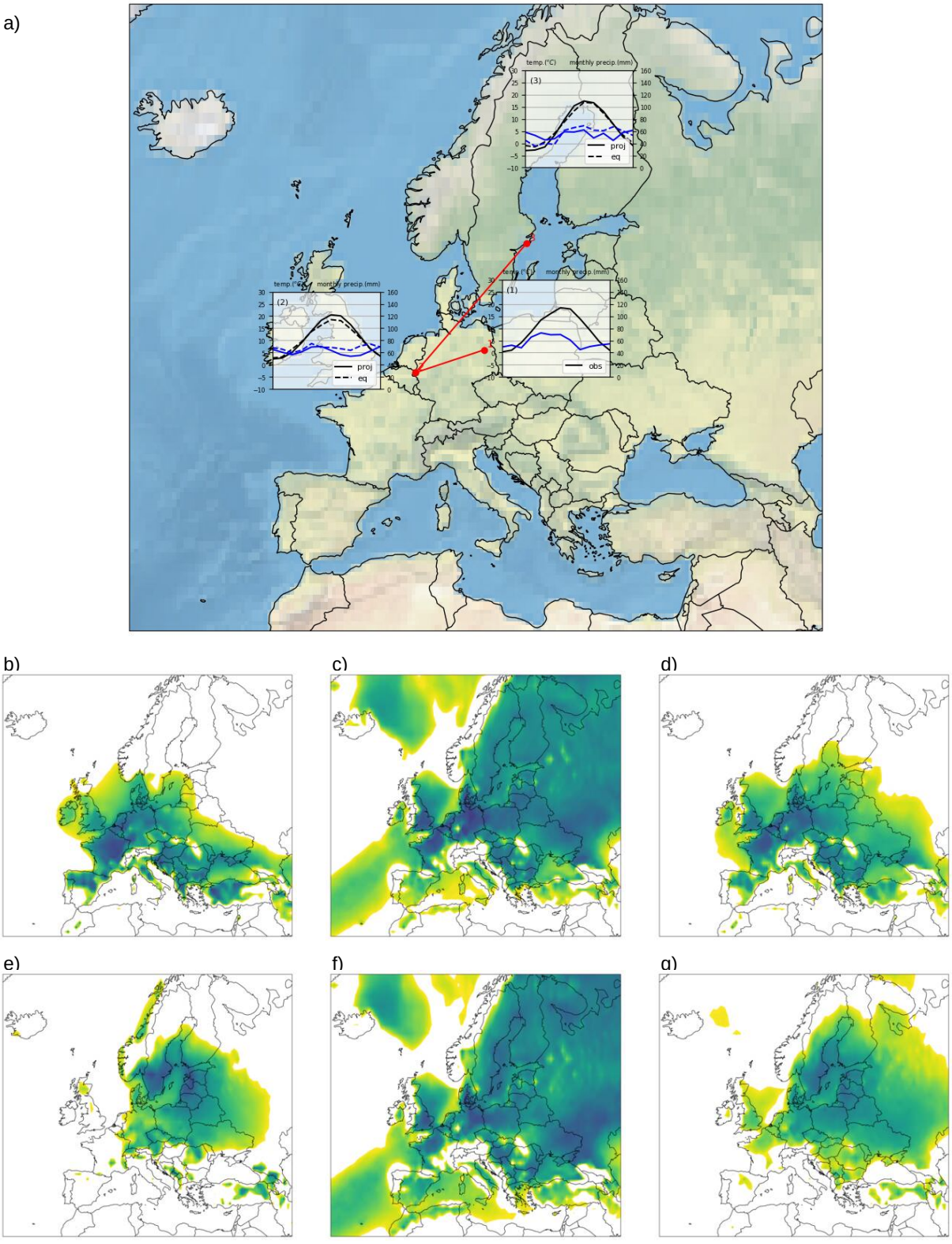

Figure S15: Equivalent climate locations for Berlin for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

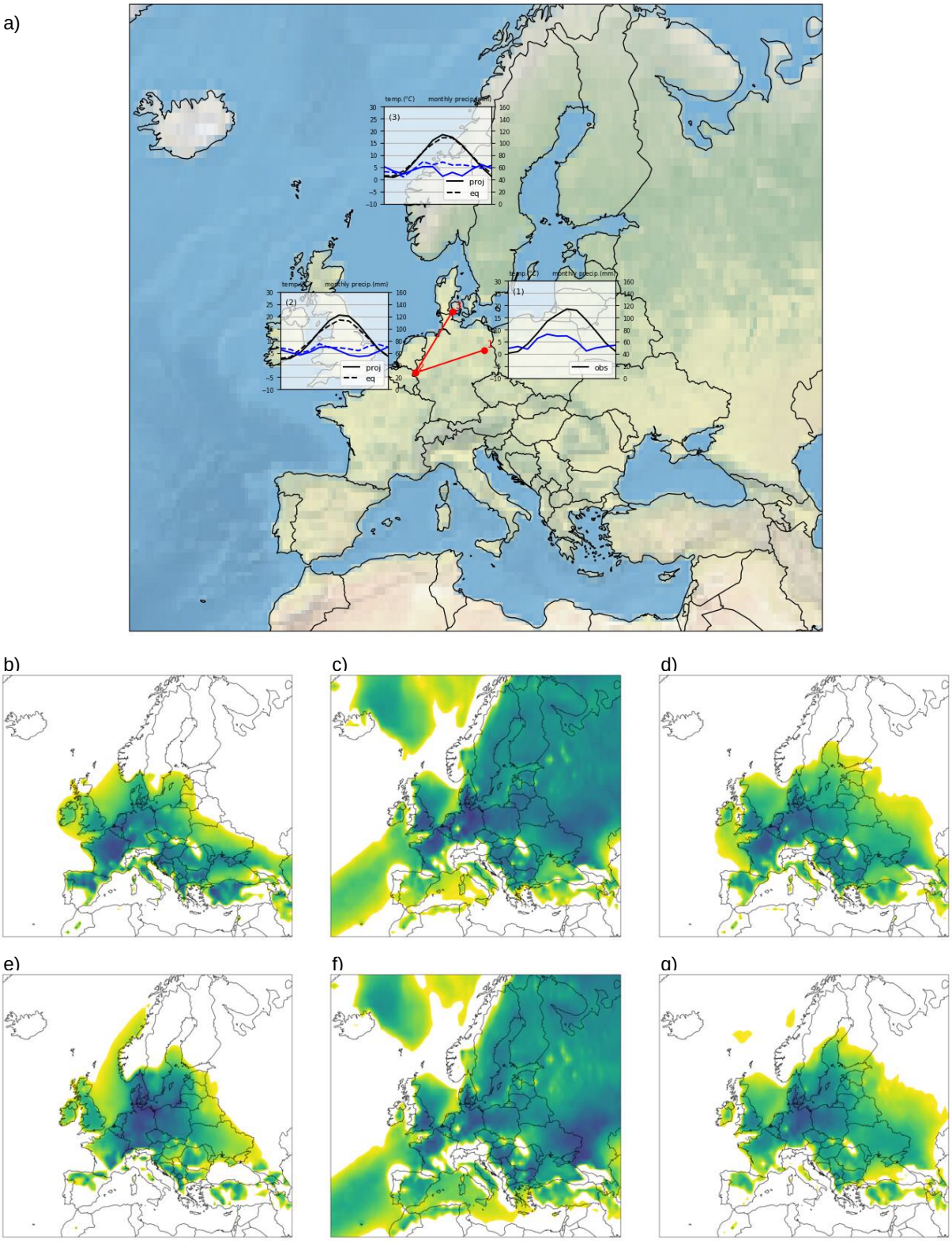

Figure S16: Equivalent climate locations for Berlin for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

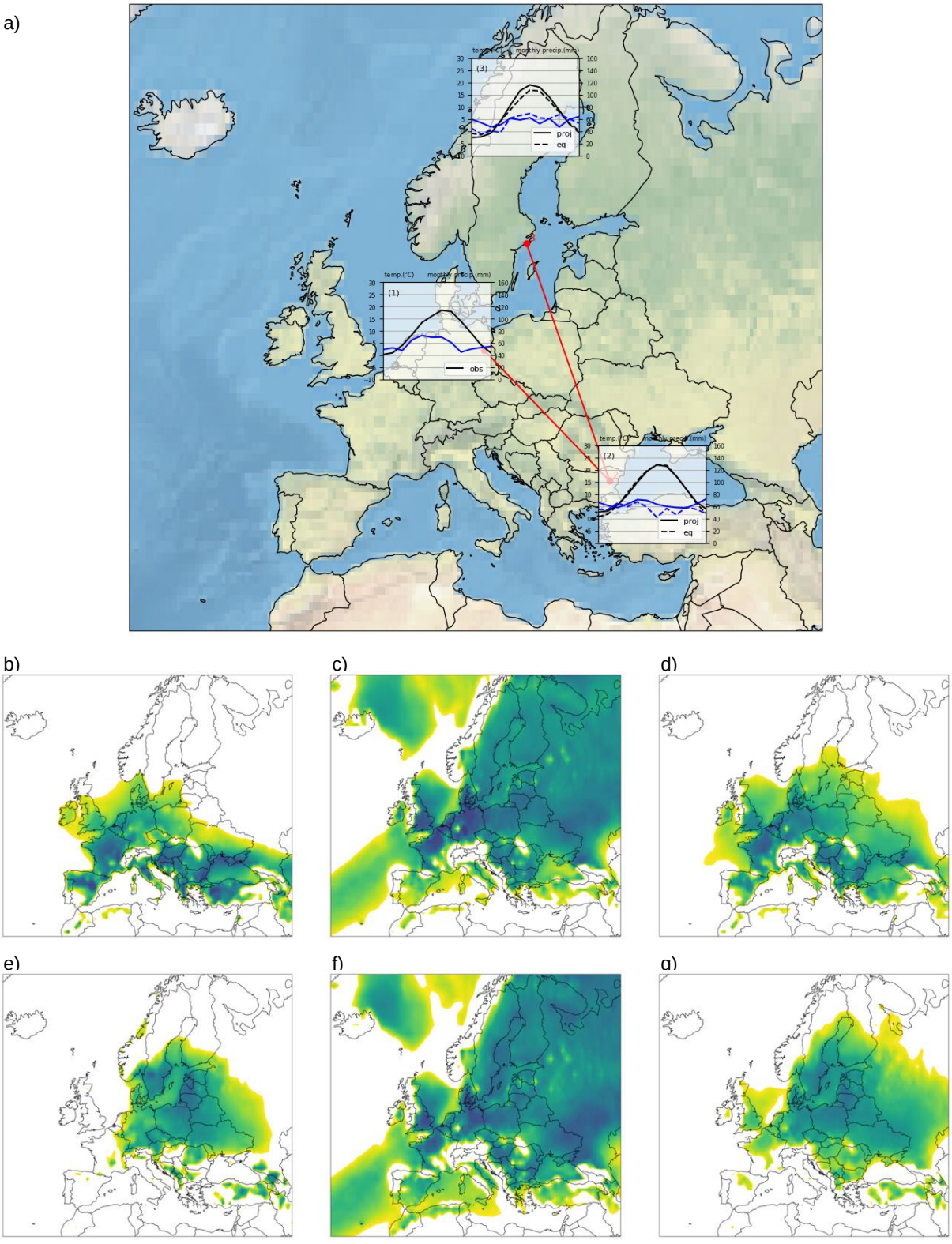

Figure S17: Equivalent climate locations for Berlin for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

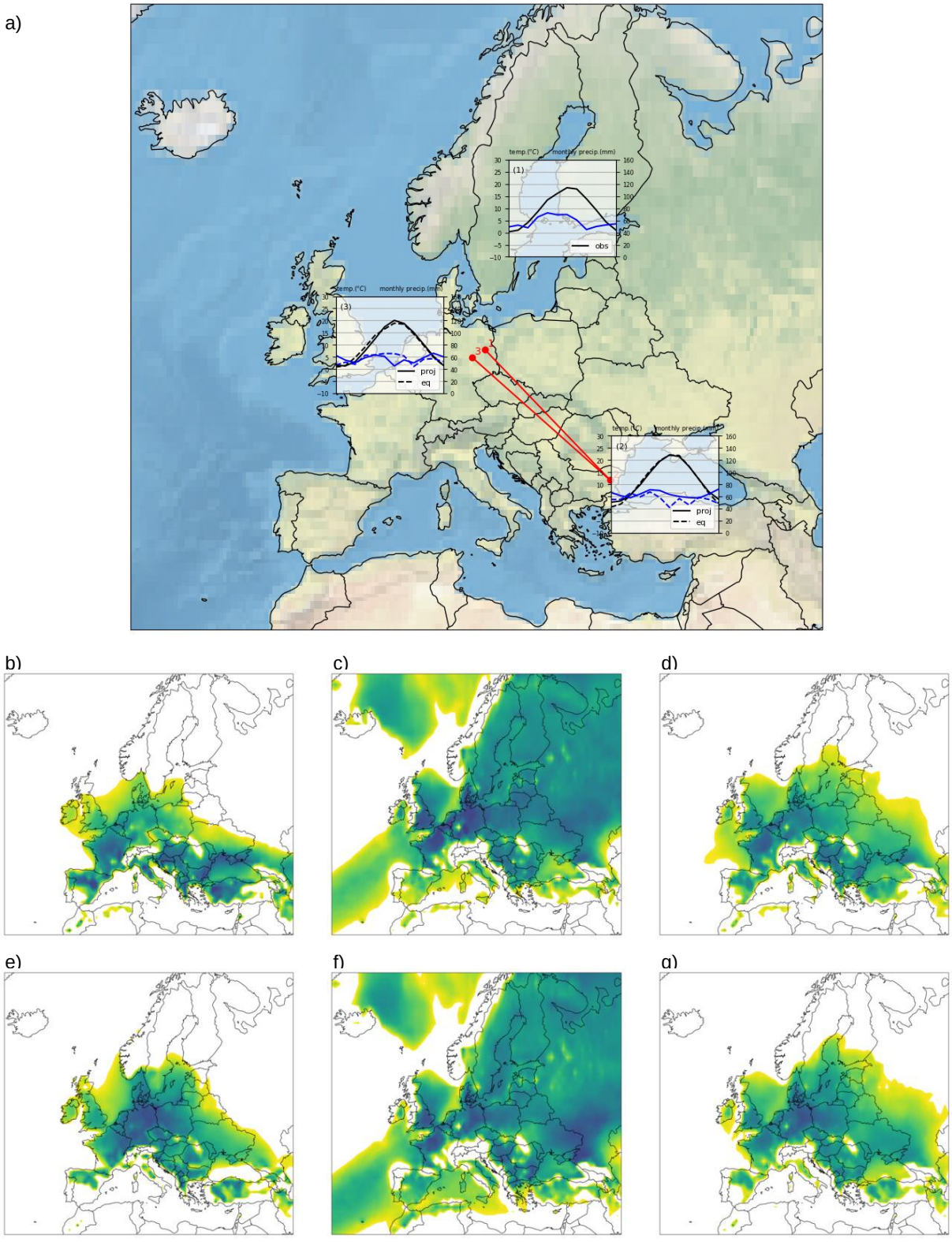

Figure S18: Equivalent climate locations for Berlin for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

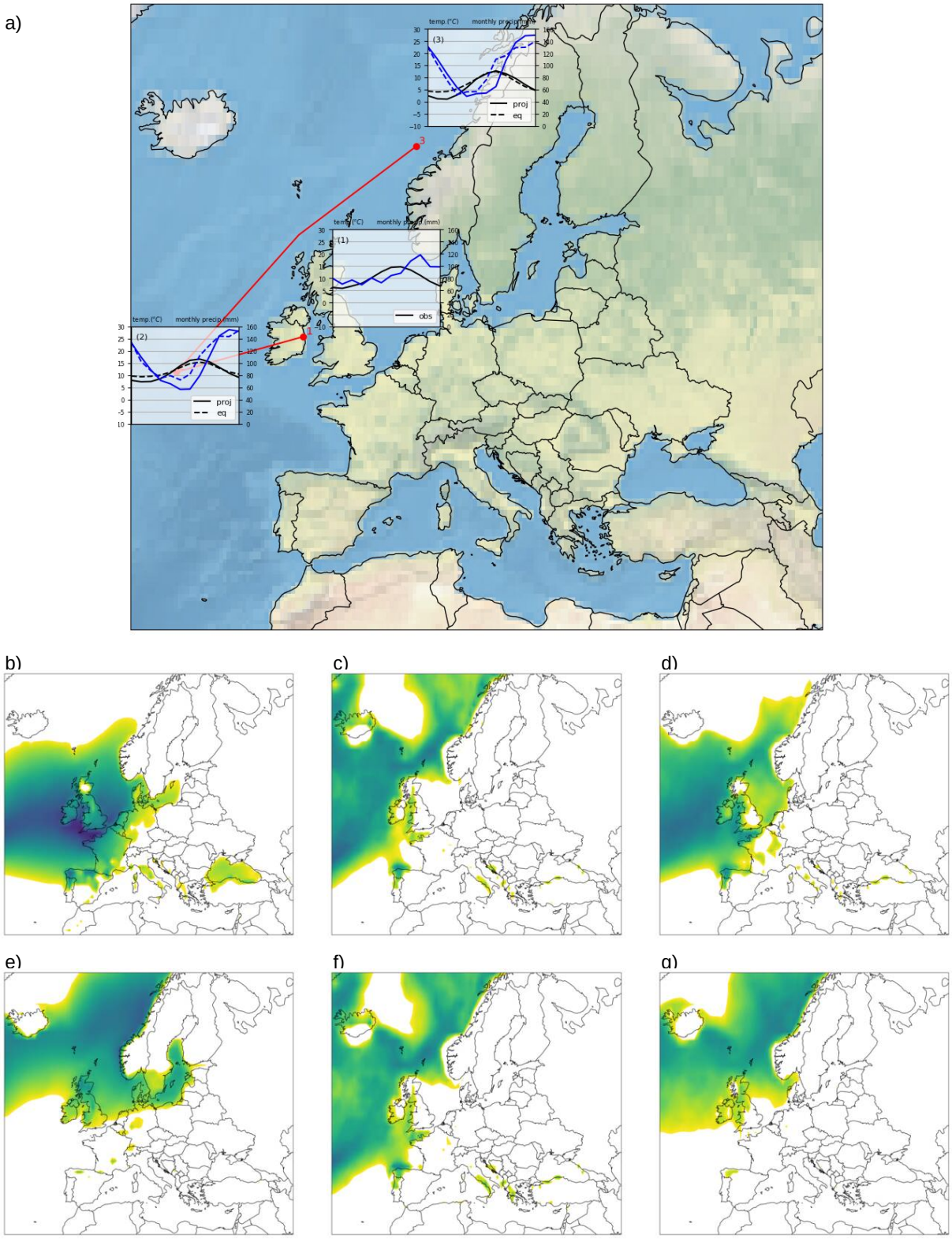

Figure S19: Equivalent climate locations for Dublin for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

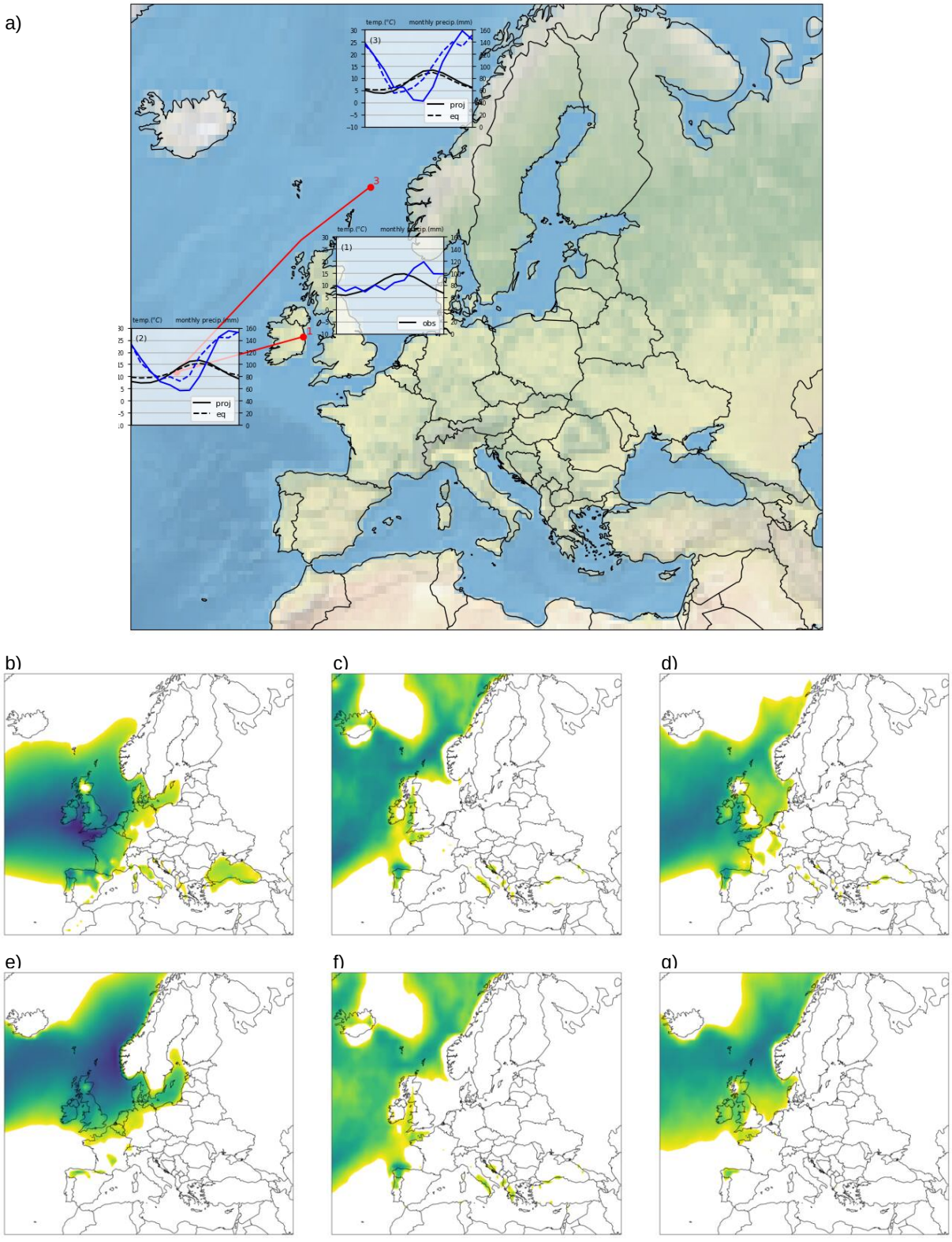

Figure S20: Equivalent climate locations for Dublin for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

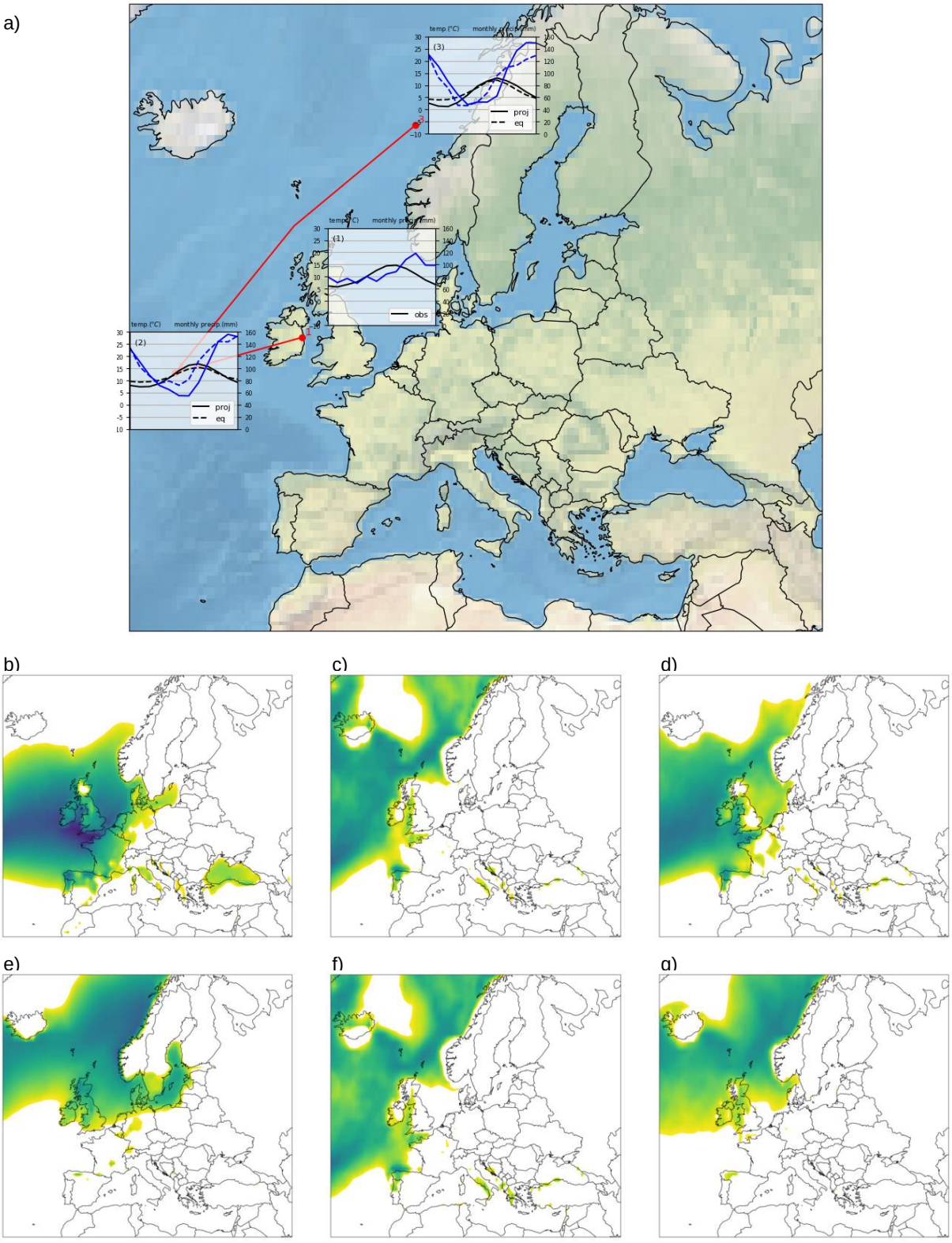

Figure S21: Equivalent climate locations for Dublin for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

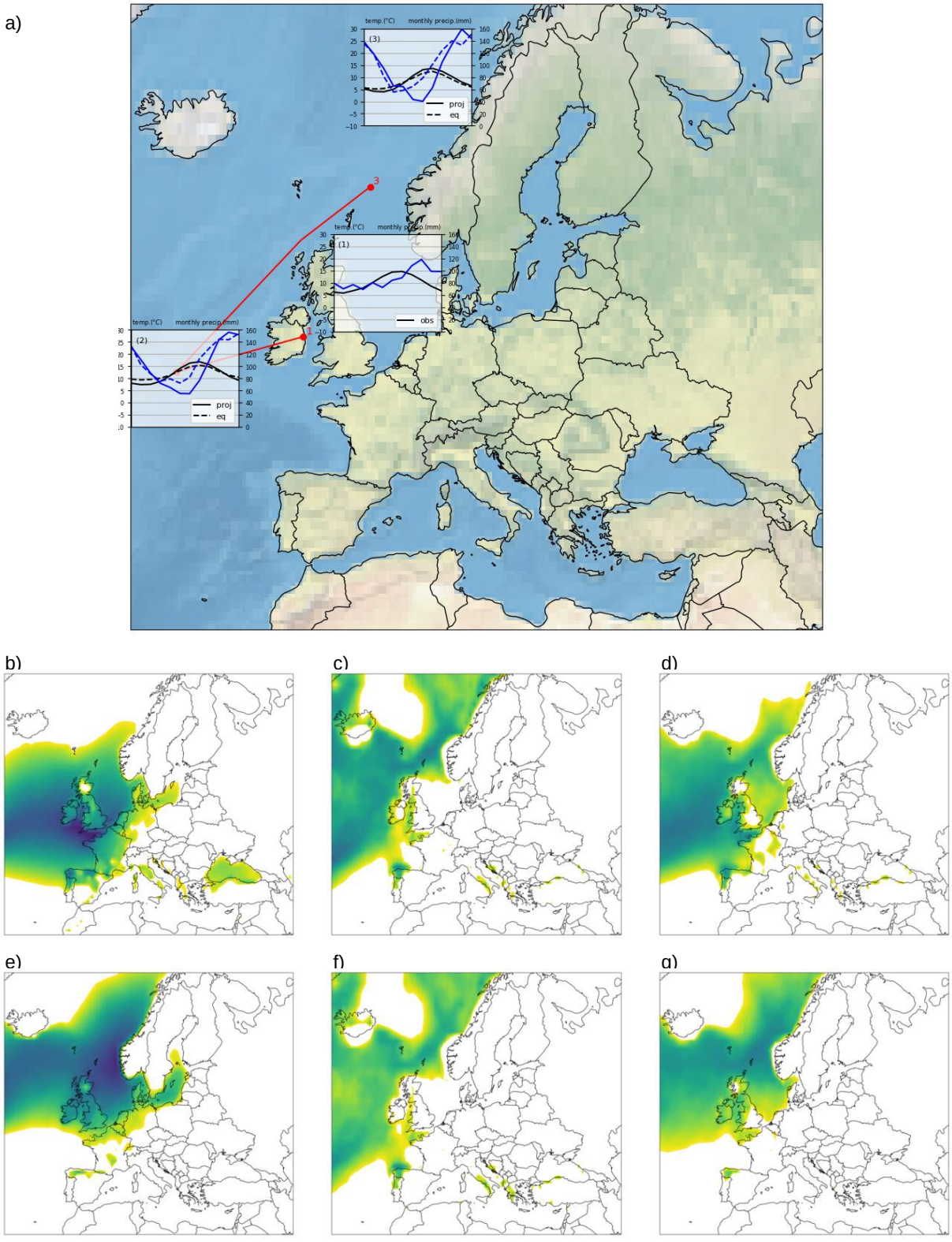

Figure S22: Equivalent climate locations for Dublin for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

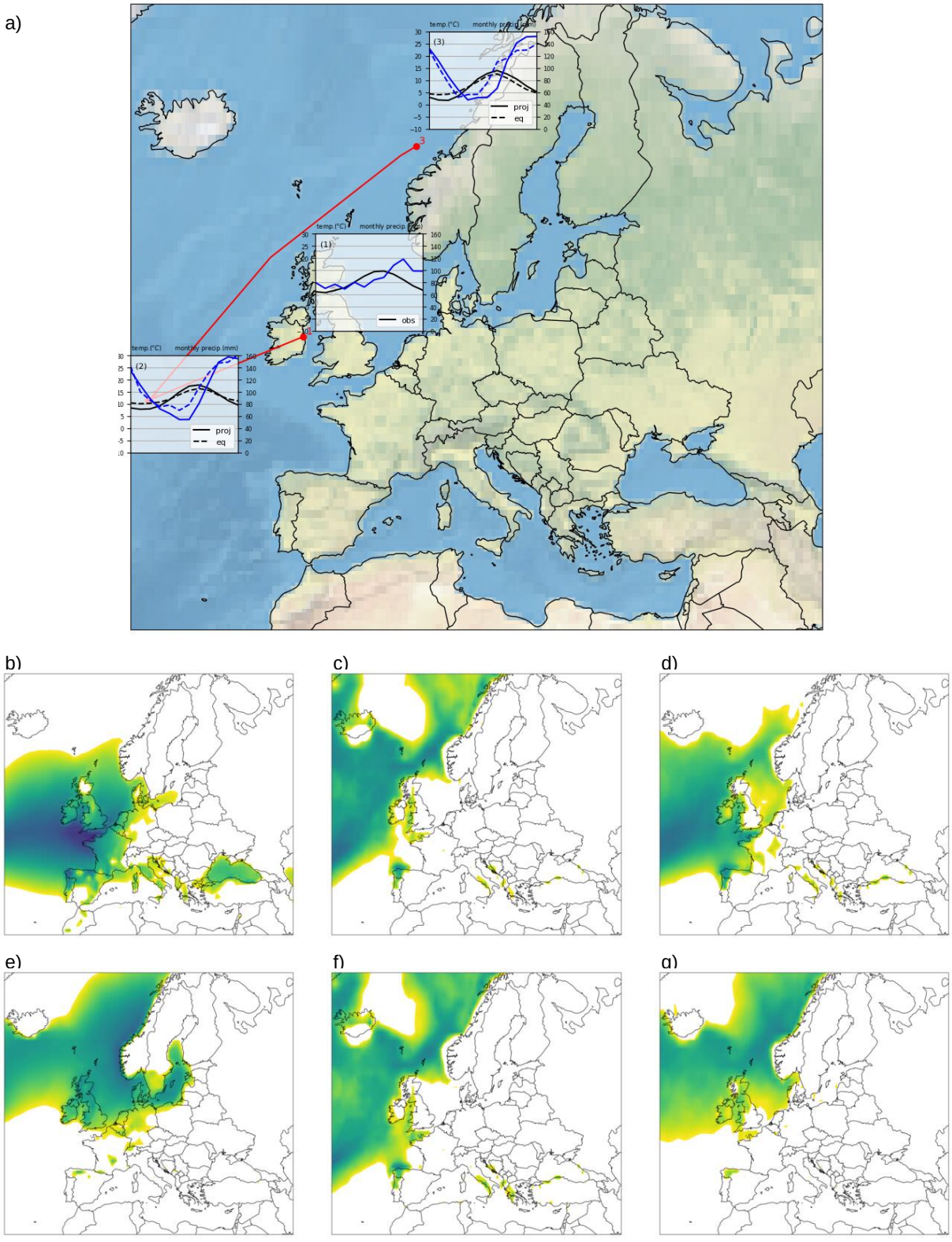

Figure S23: Equivalent climate locations for Dublin for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

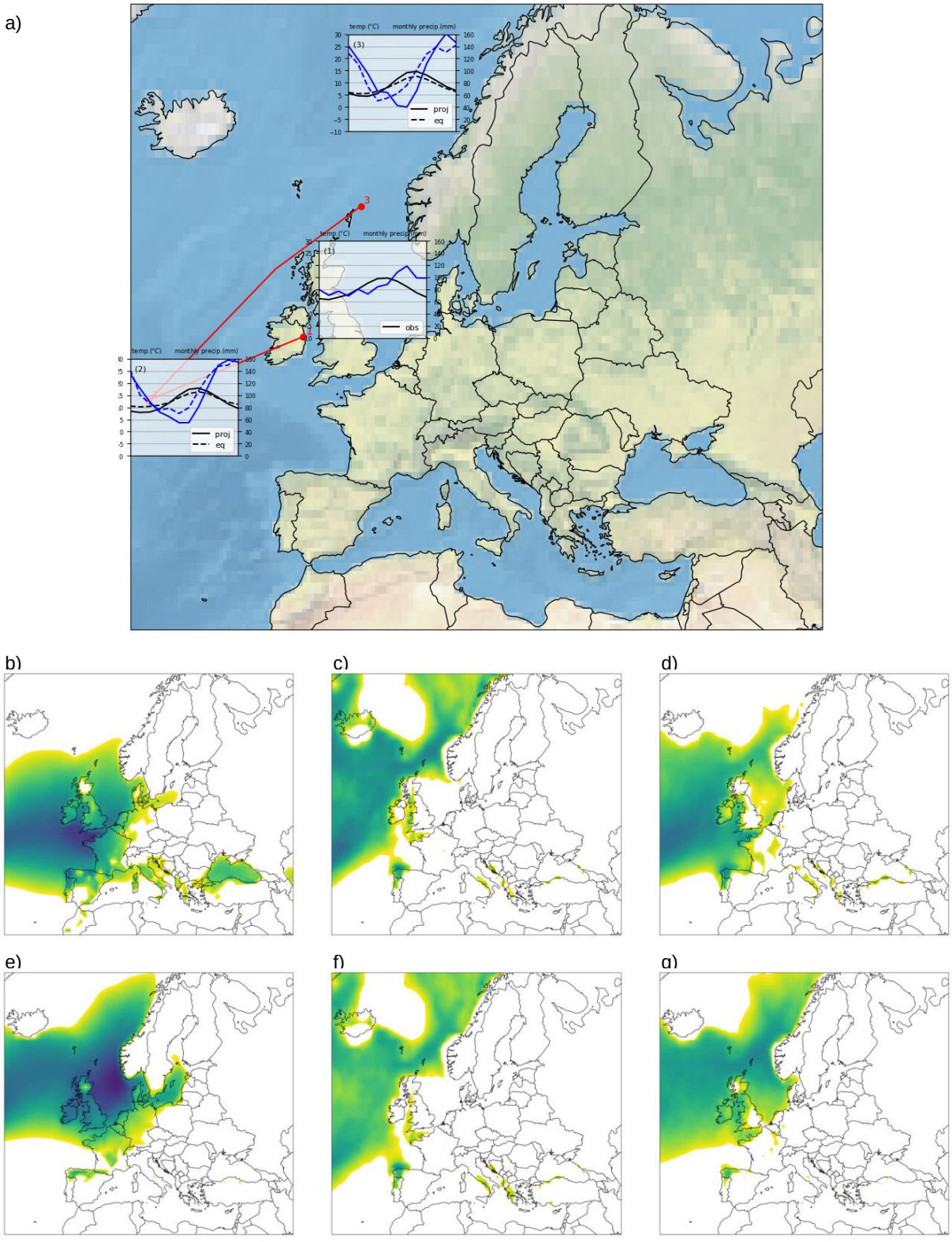

Figure S24: Equivalent climate locations for Dublin for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

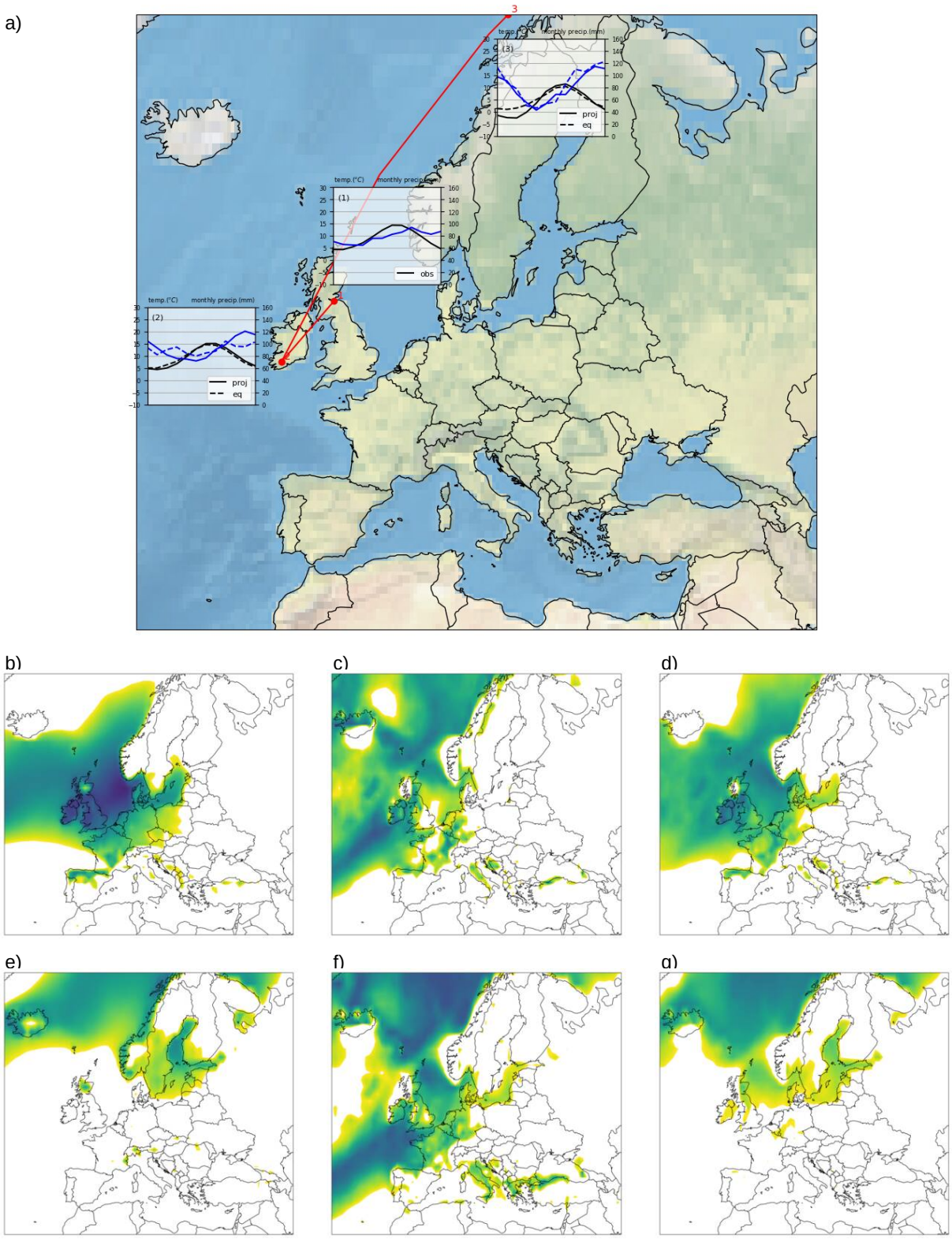

Figure S25: Equivalent climate locations for Edinburgh for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

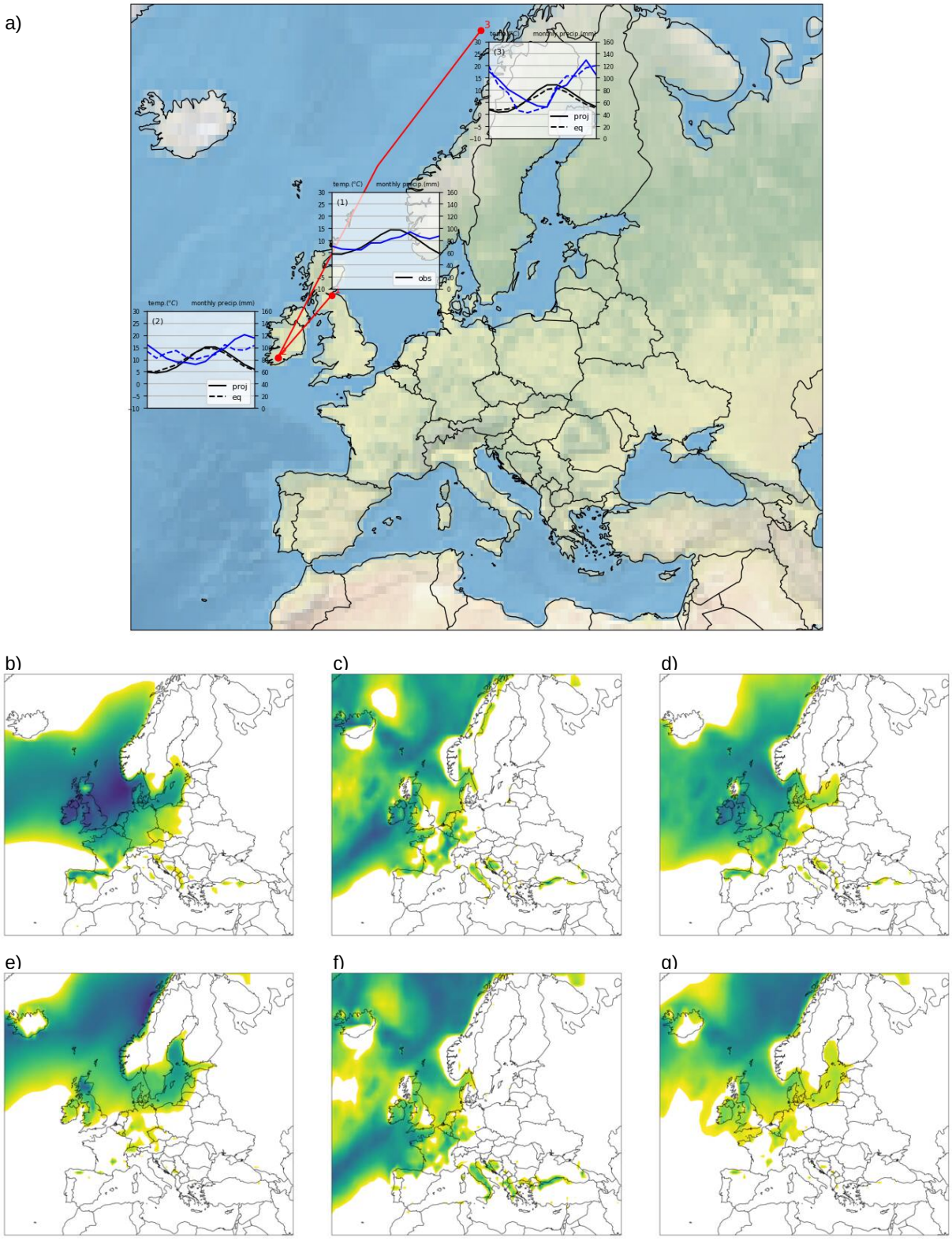

Figure S26: Equivalent climate locations for Edinburgh for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

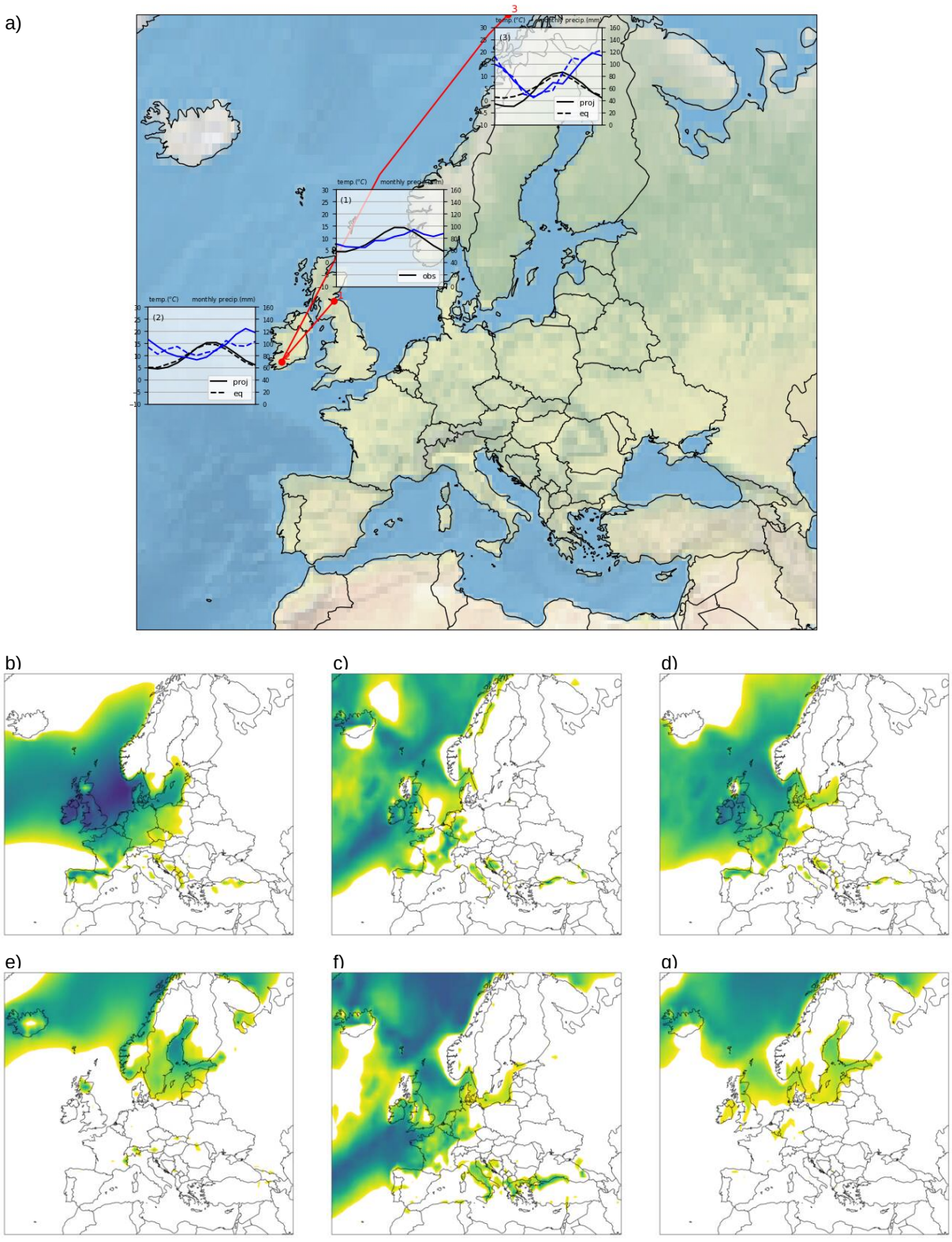

Figure S27: Equivalent climate locations for Edinburgh for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

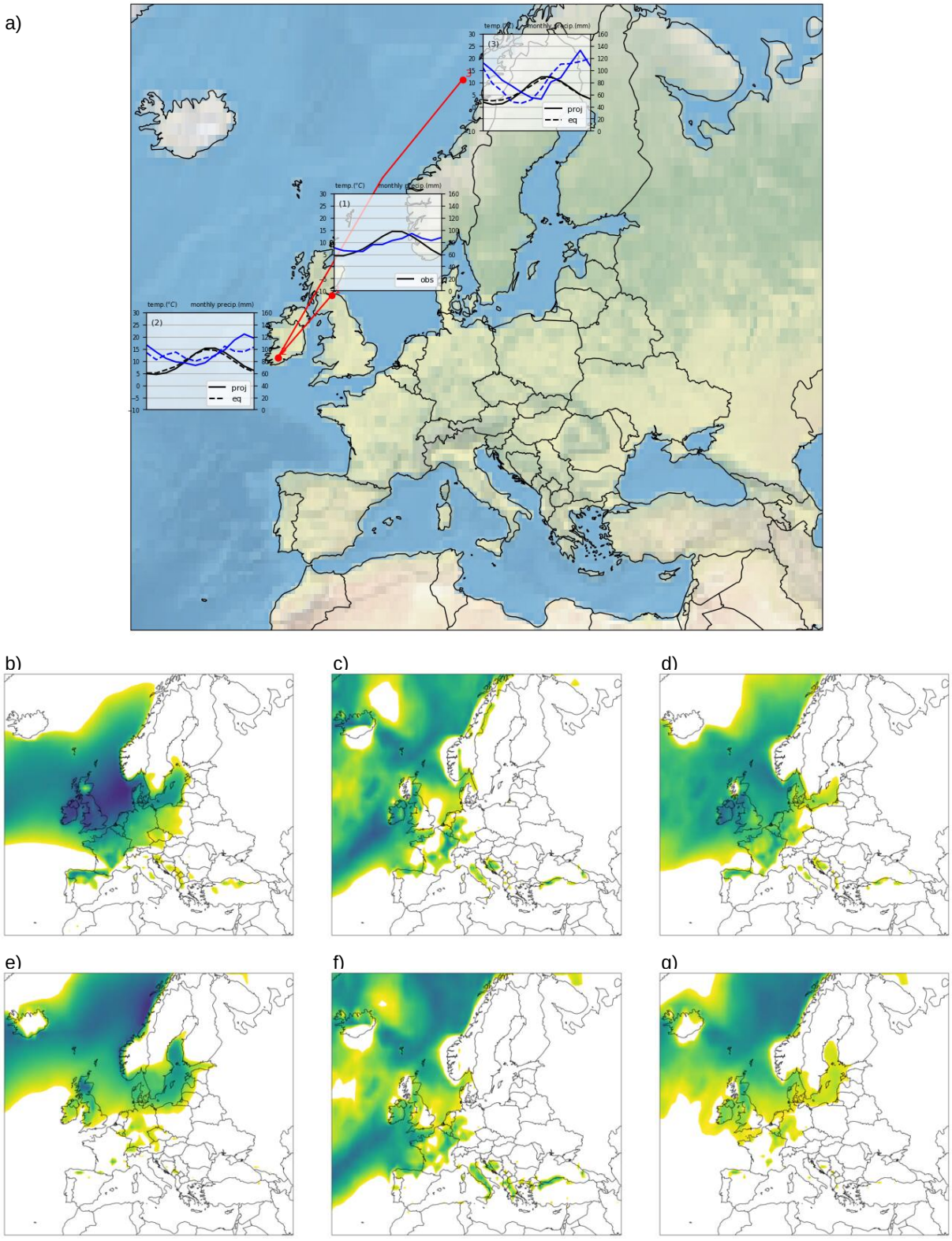

Figure S28: Equivalent climate locations for Edinburgh for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

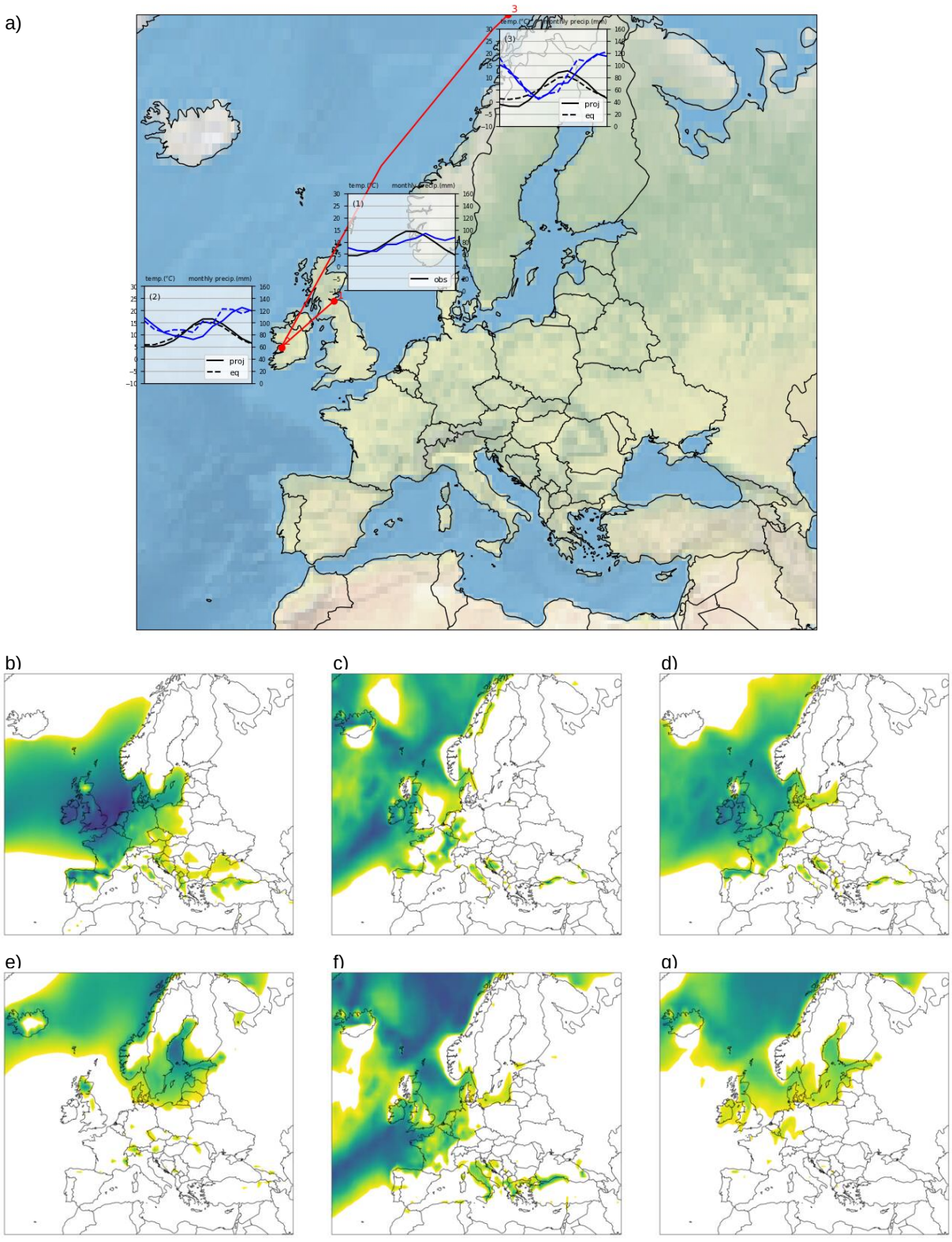

Figure S29: Equivalent climate locations for Edinburgh for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

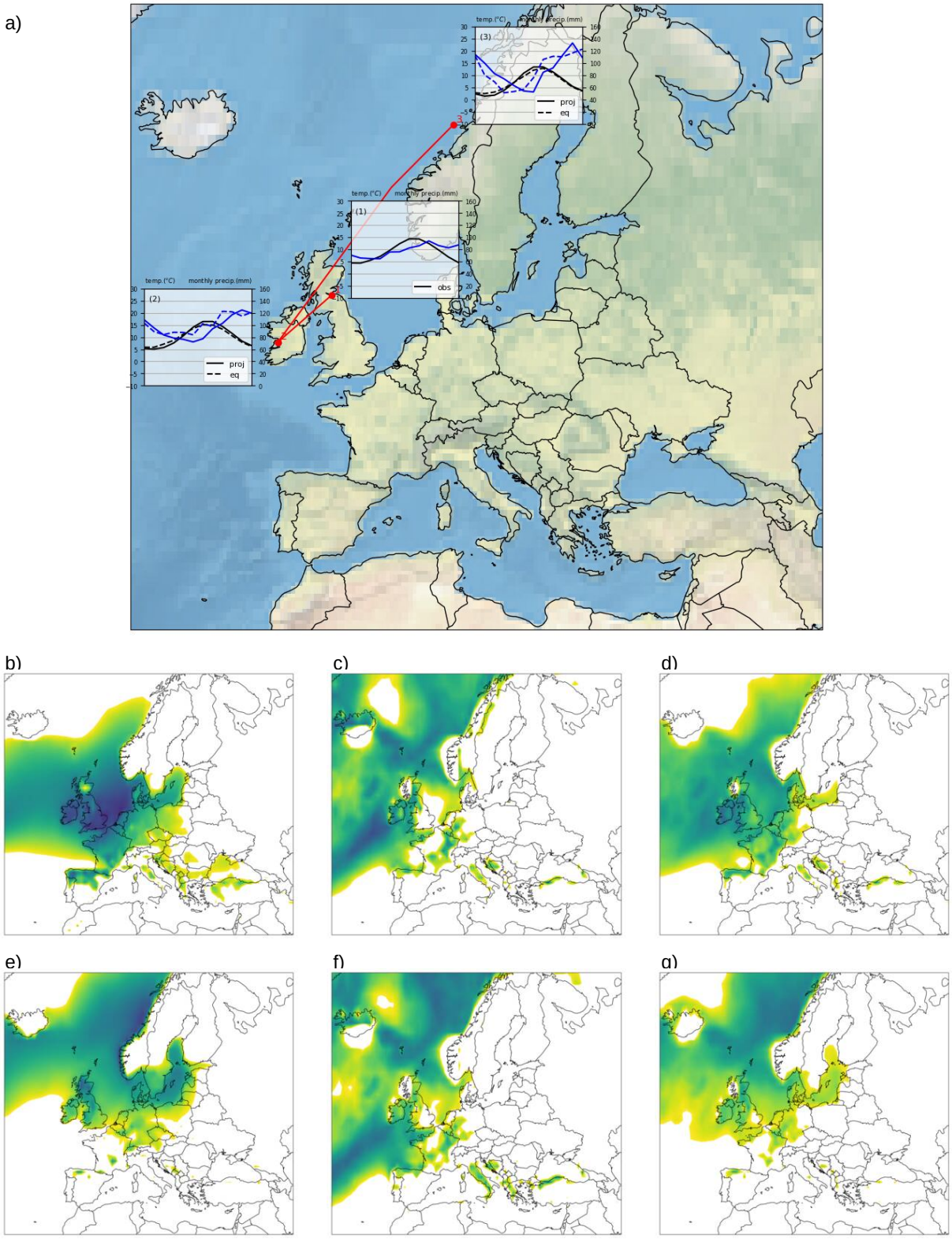

Figure S30: Equivalent climate locations for Edinburgh for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

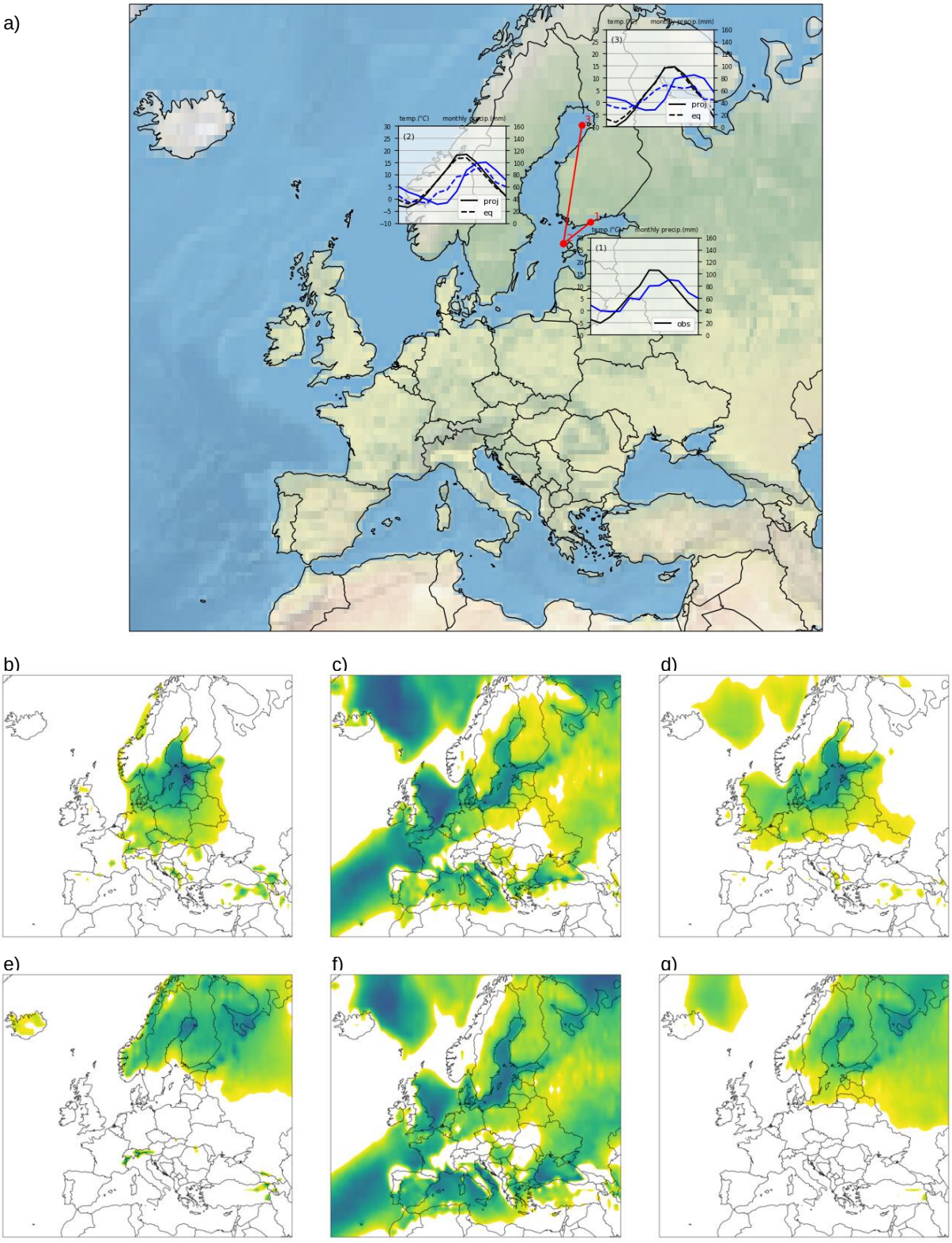

Figure S31: Equivalent climate locations for Helsinki for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

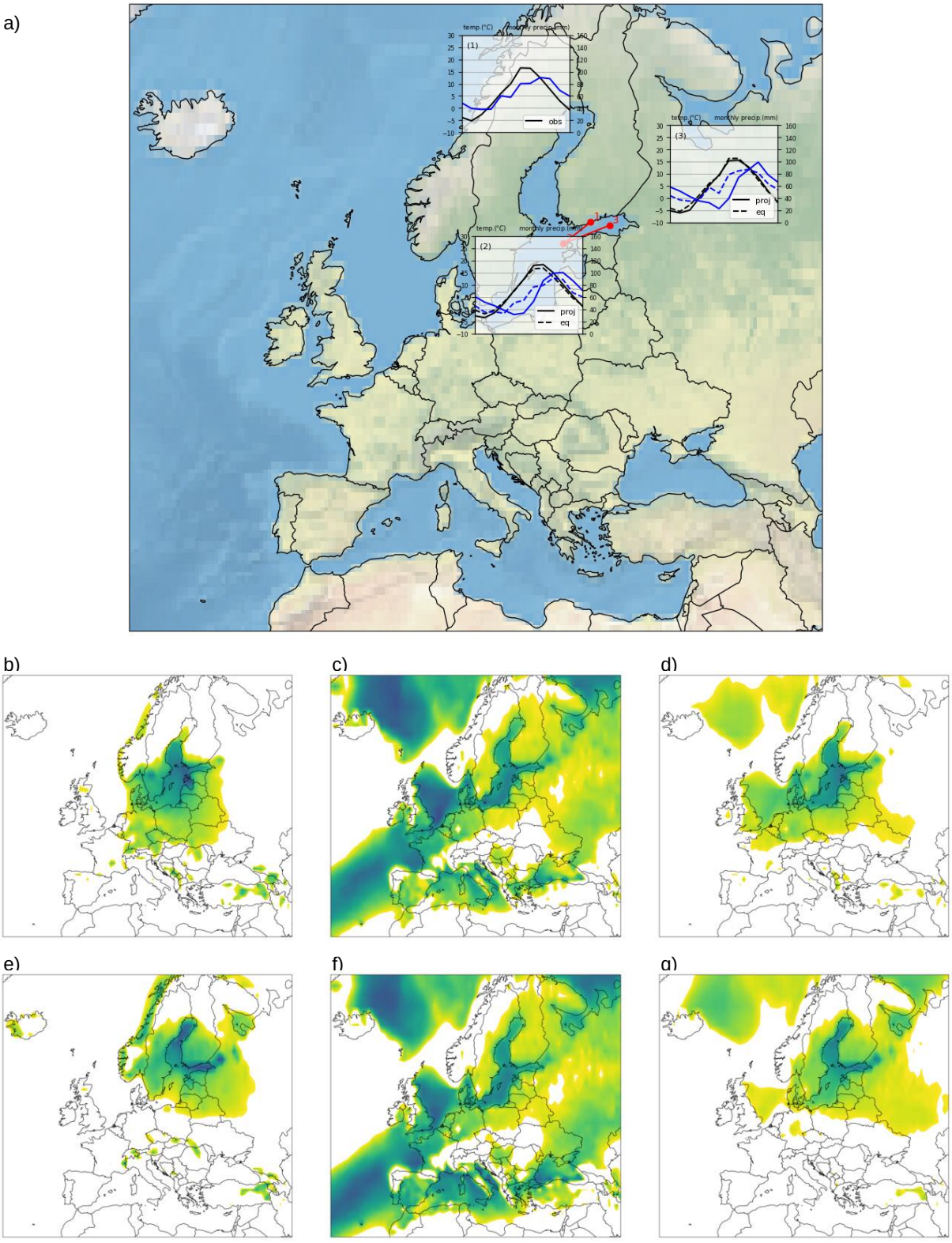

Figure S32: Equivalent climate locations for Helsinki for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

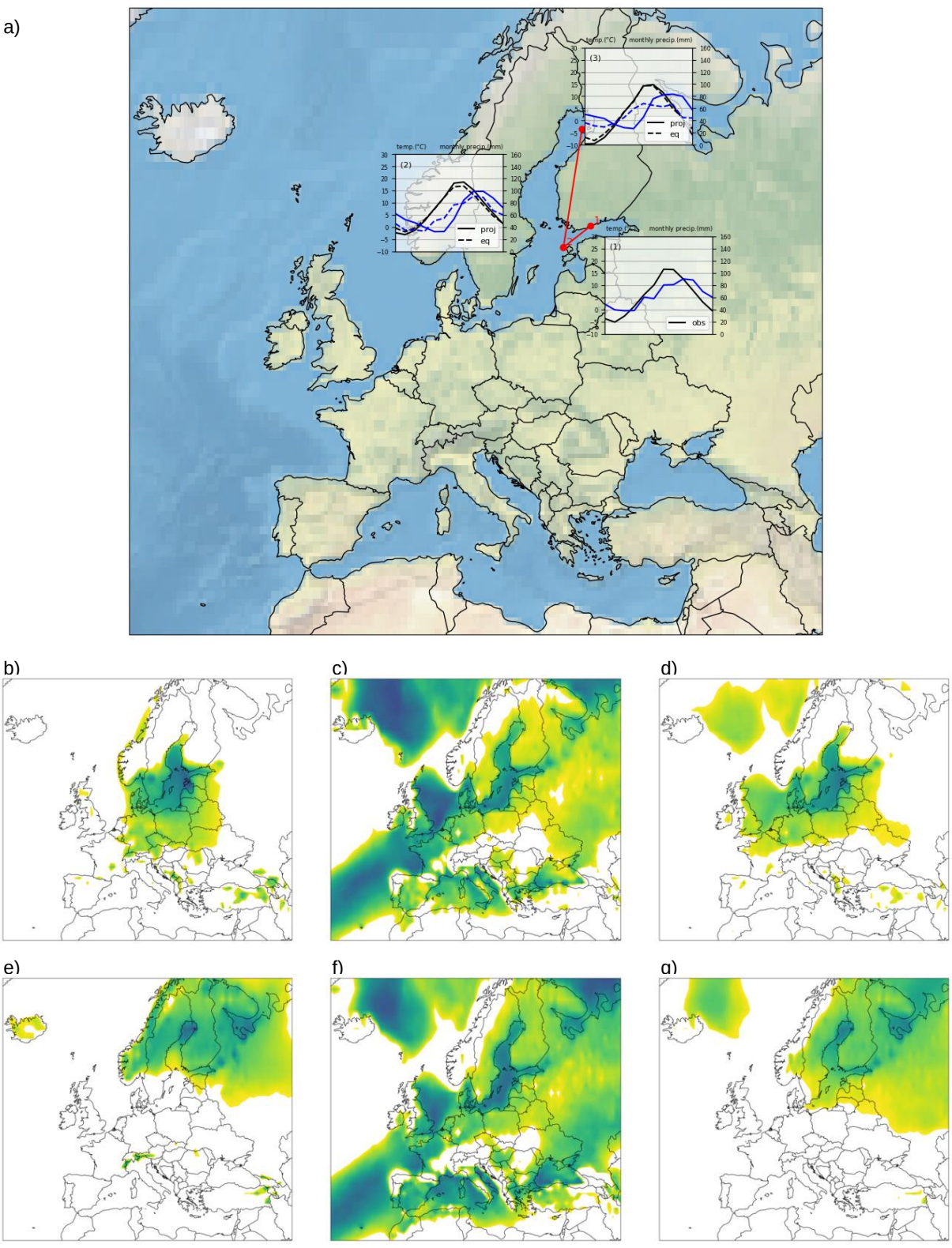

Figure S33: Equivalent climate locations for Helsinki for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

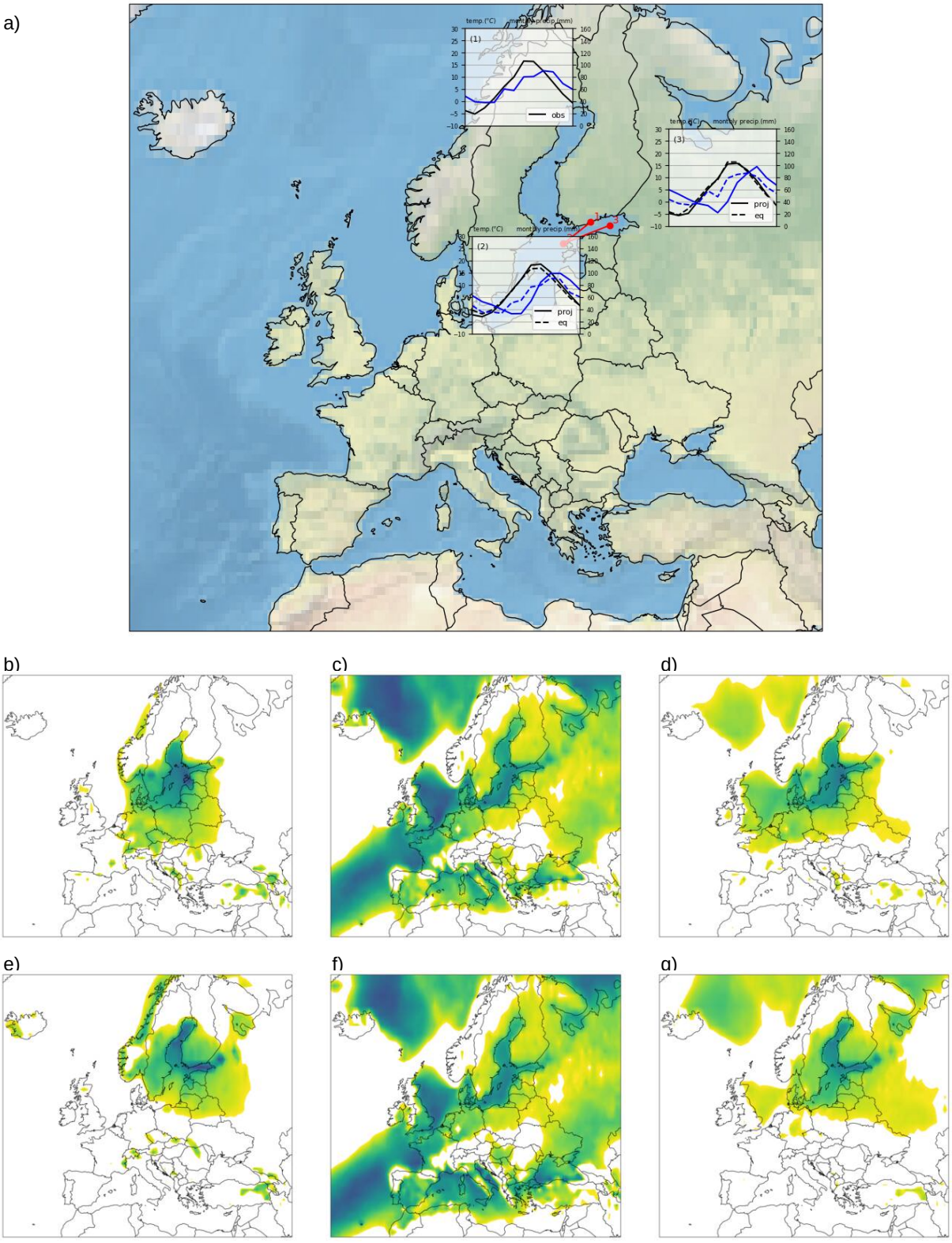

Figure S34: Equivalent climate locations for Helsinki for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

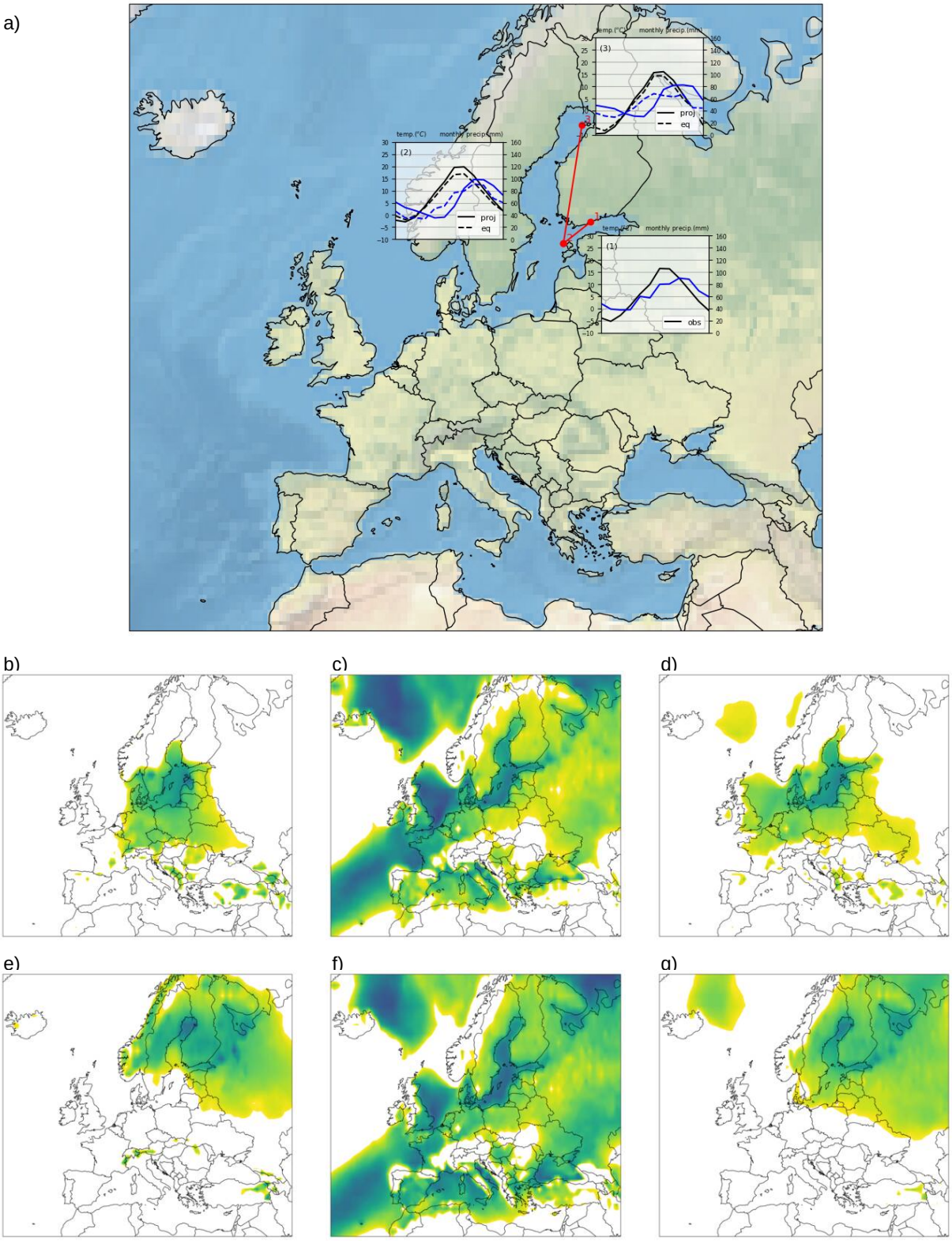

Figure S35: Equivalent climate locations for Helsinki for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

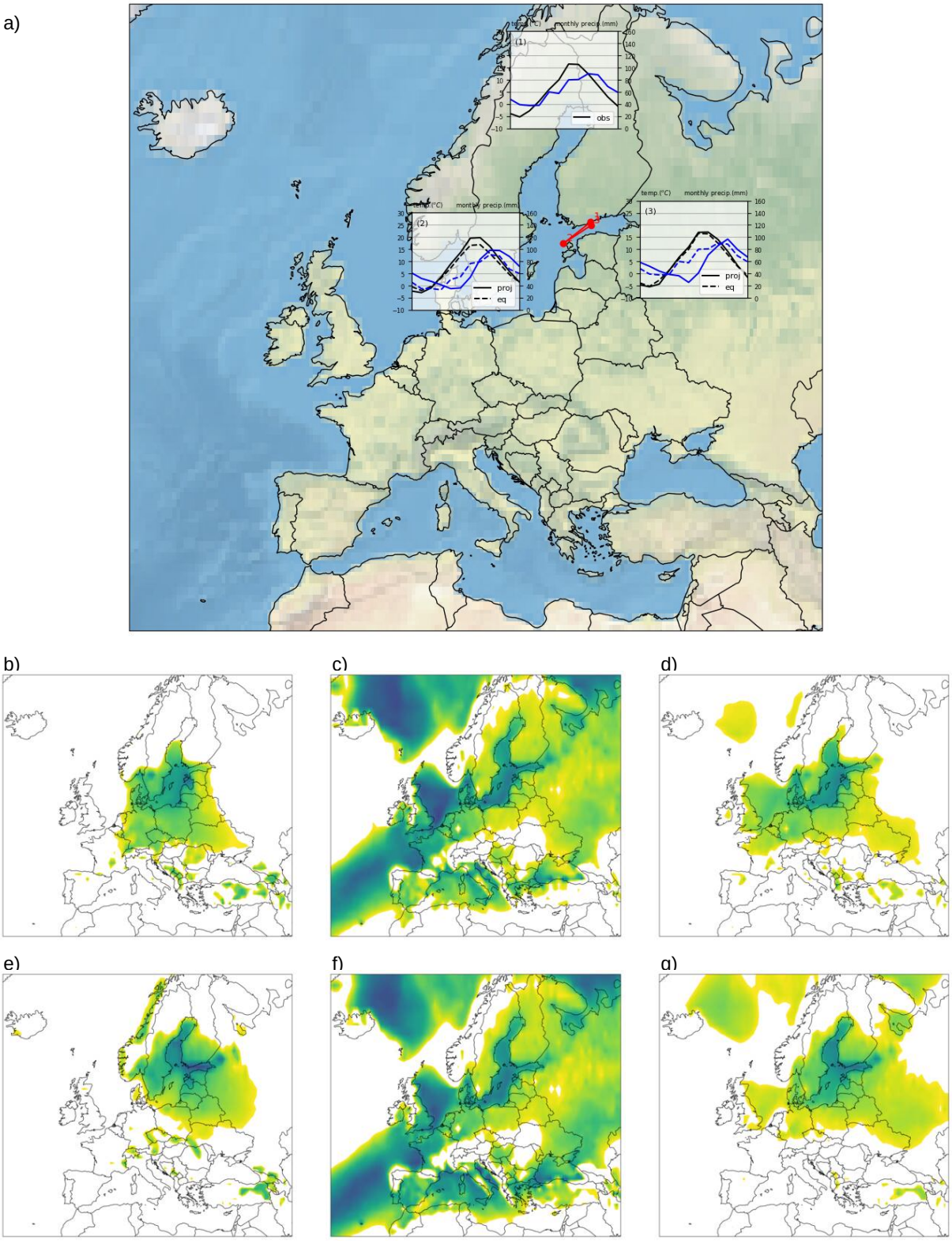

Figure S36: Equivalent climate locations for Helsinki for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

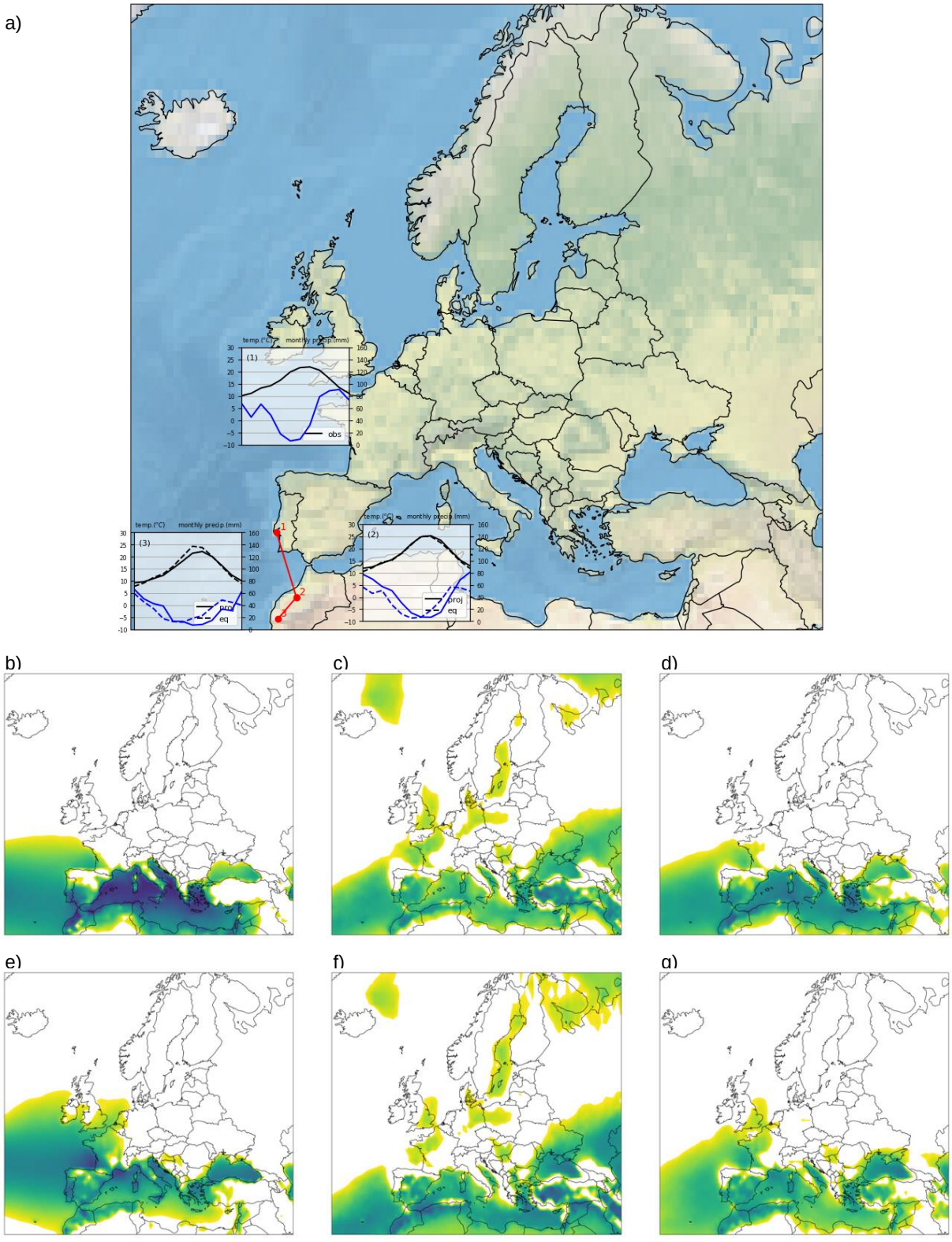

Figure S37: Equivalent climate locations for Lissabon for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

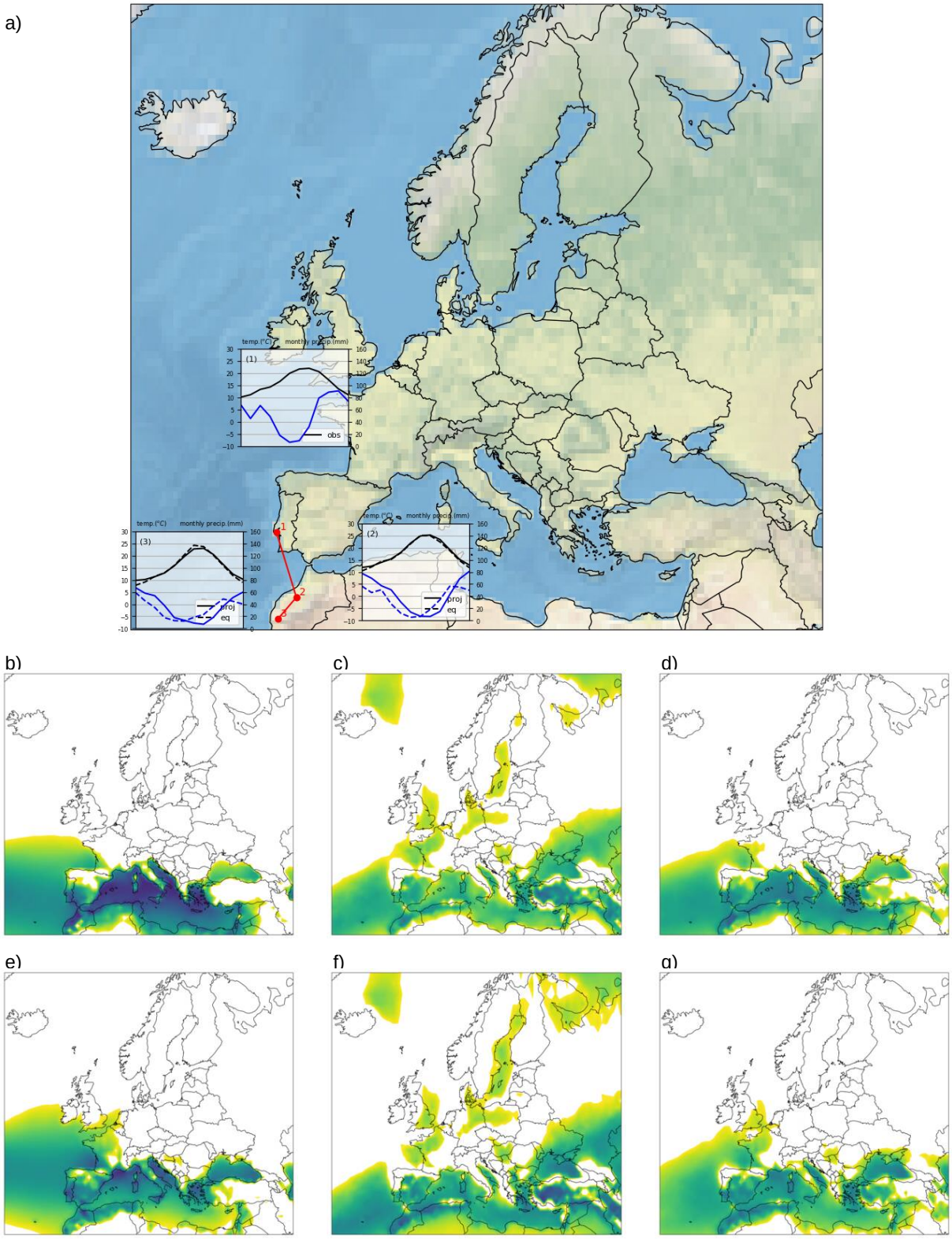

Figure S38: Equivalent climate locations for Lissabon for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

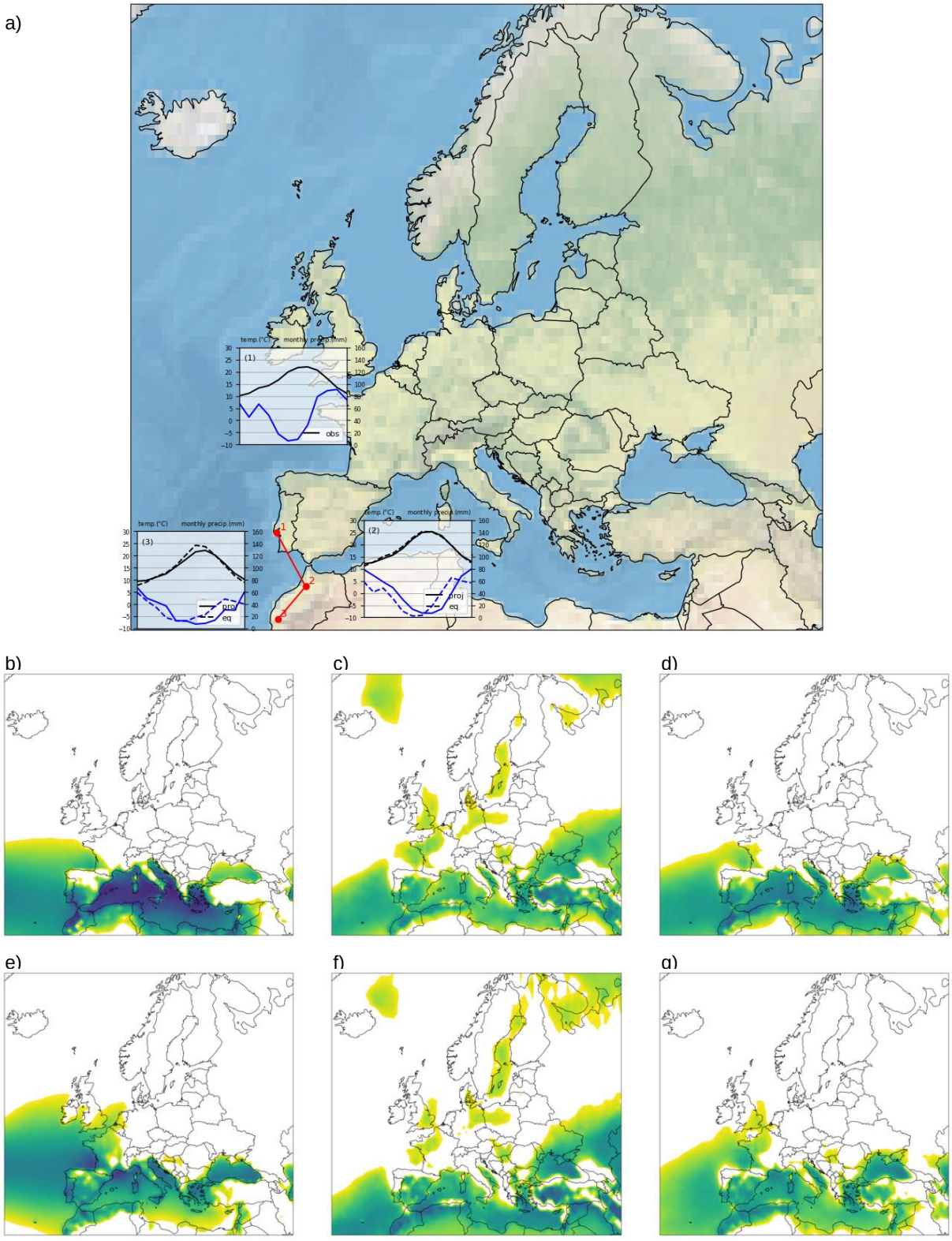

Figure S39: Equivalent climate locations for Lissabon for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

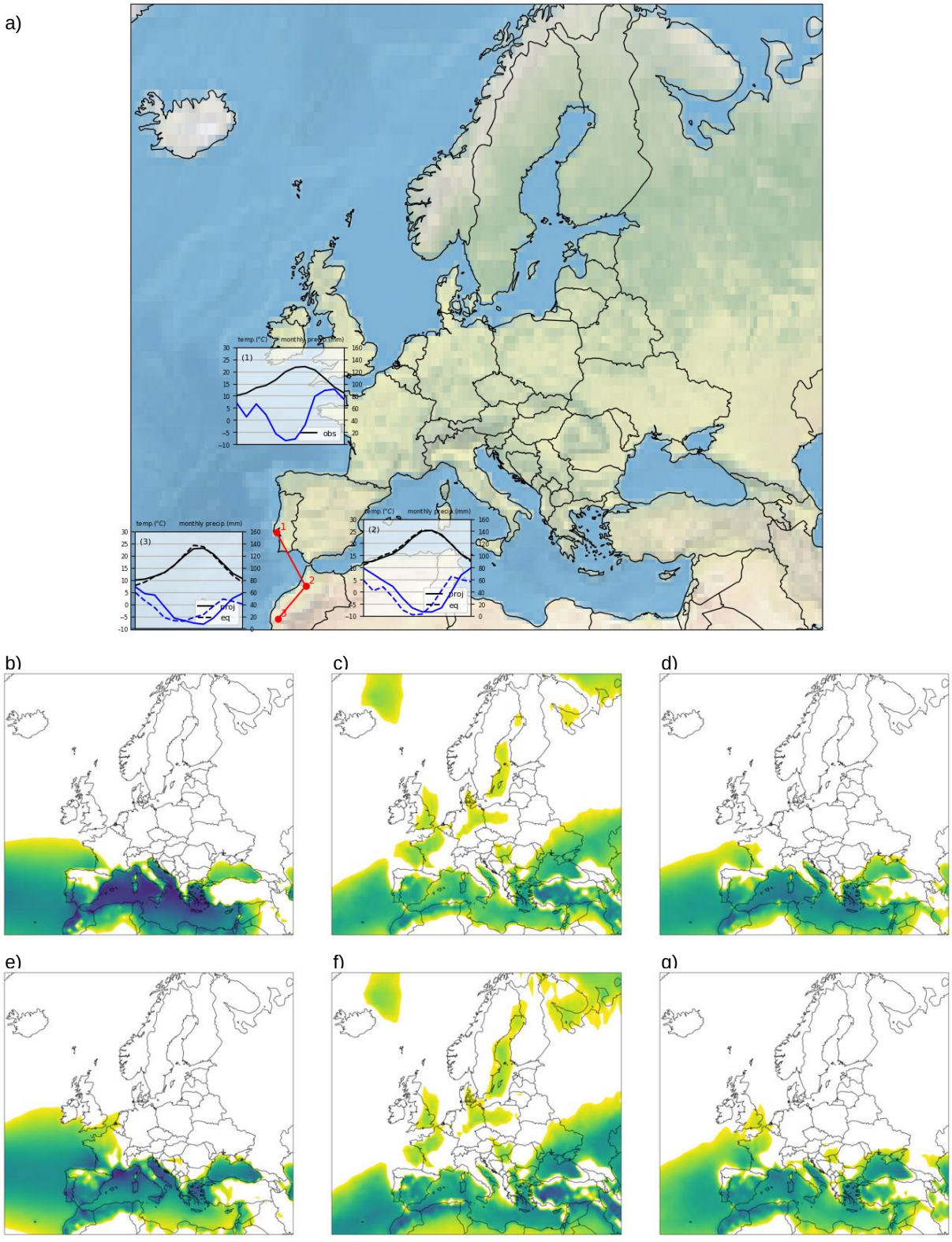

Figure S40: Equivalent climate locations for Lissabon for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

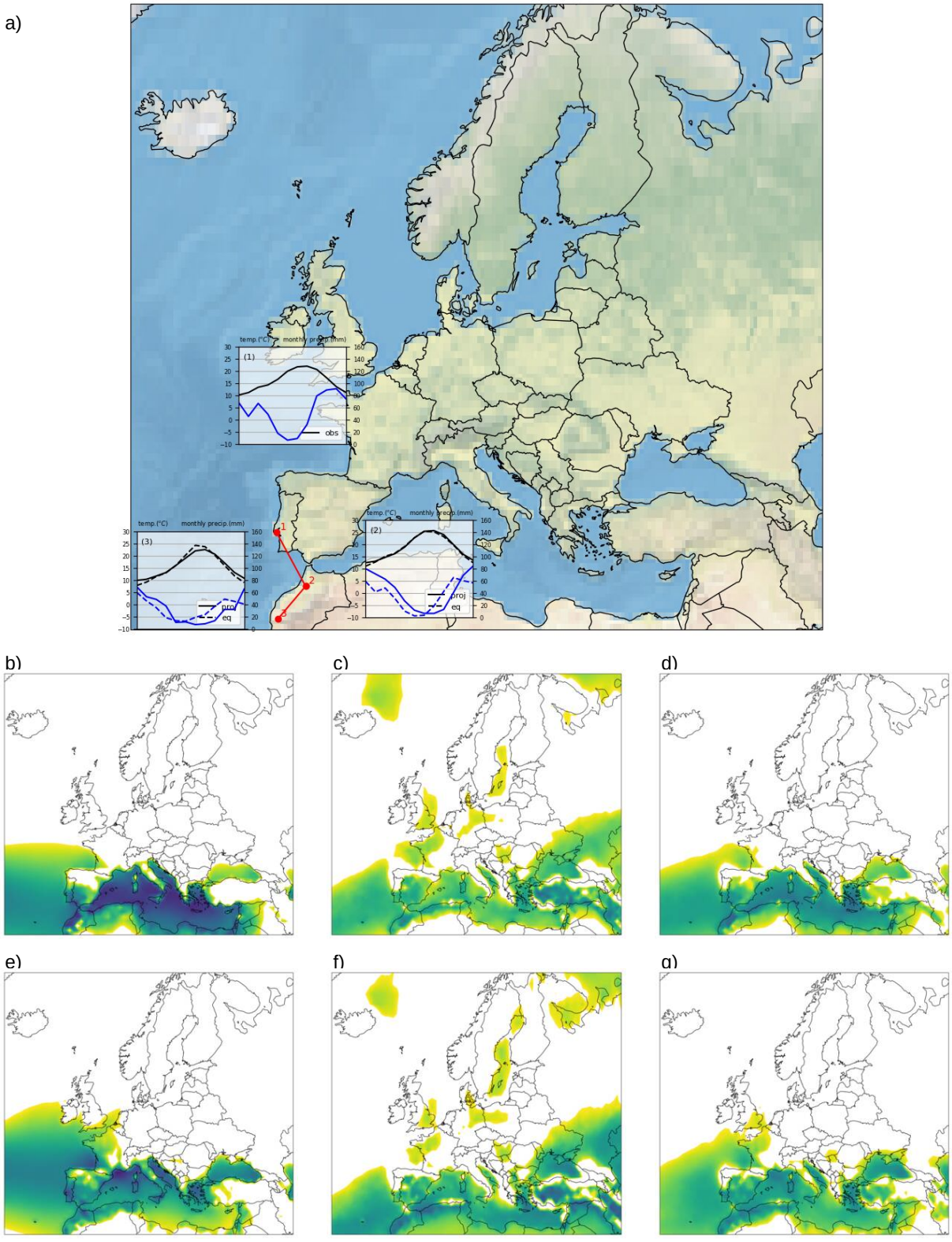

Figure S41: Equivalent climate locations for Lissabon for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

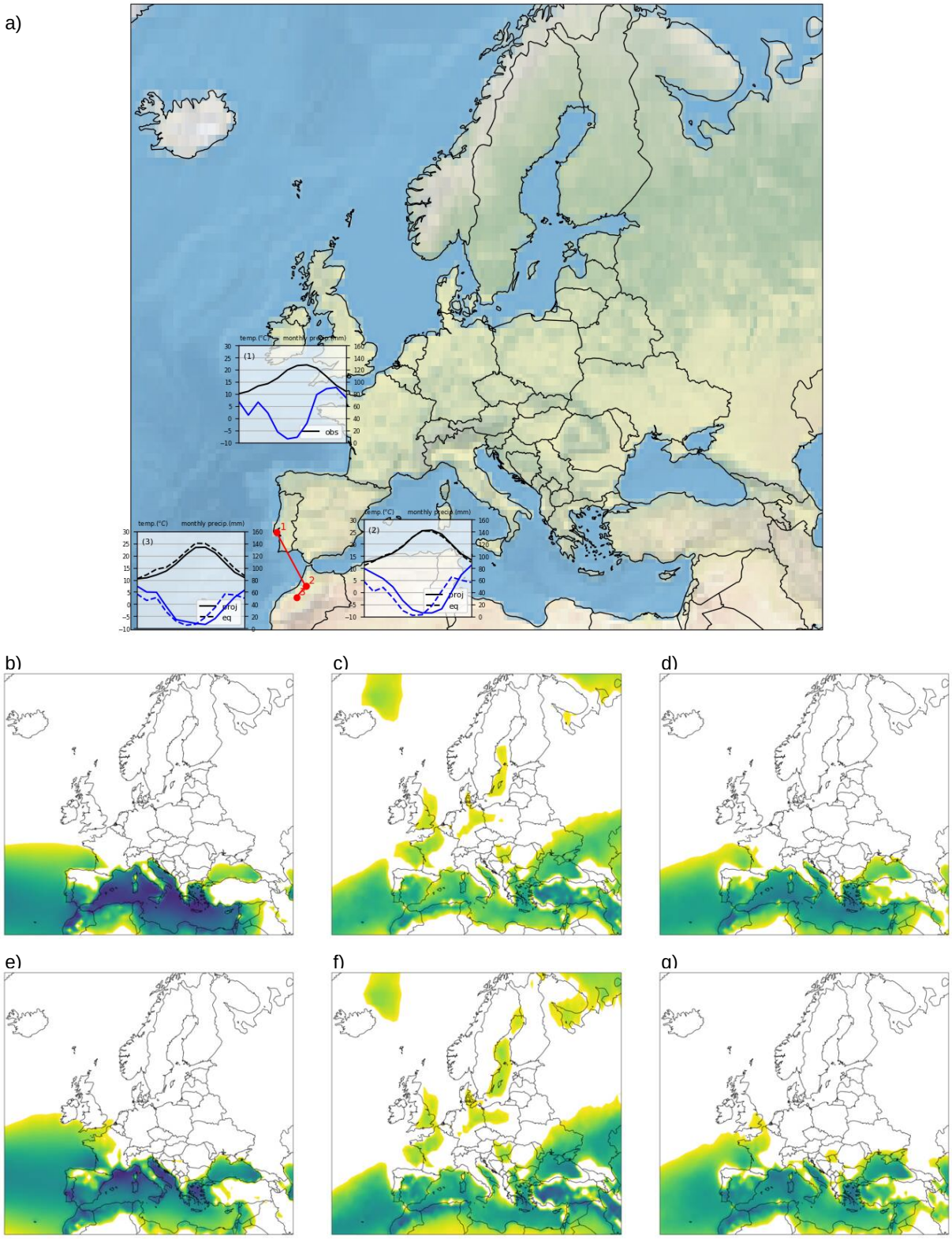

Figure S42: Equivalent climate locations for Lissabon for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

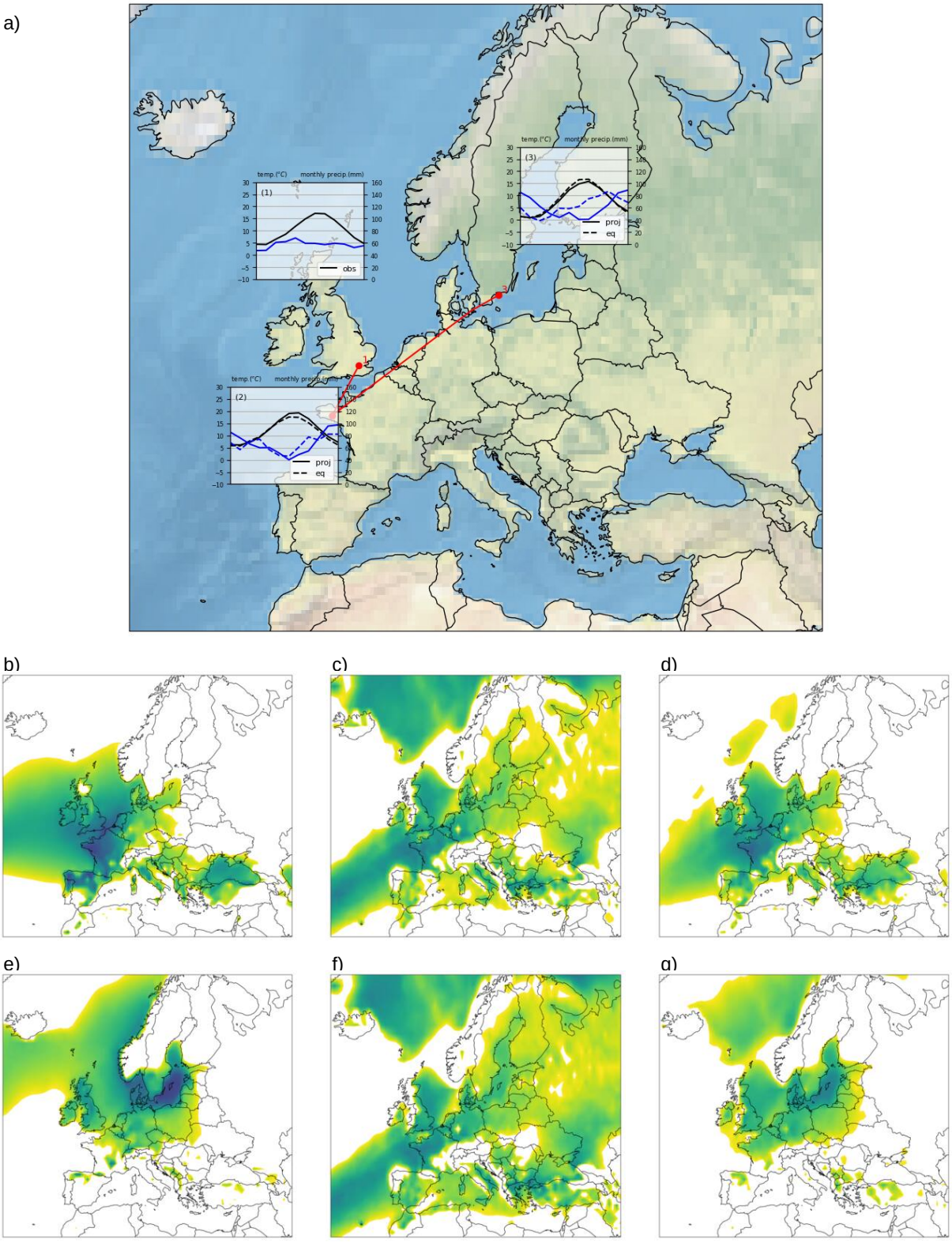

Figure S43: Equivalent climate locations for London for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

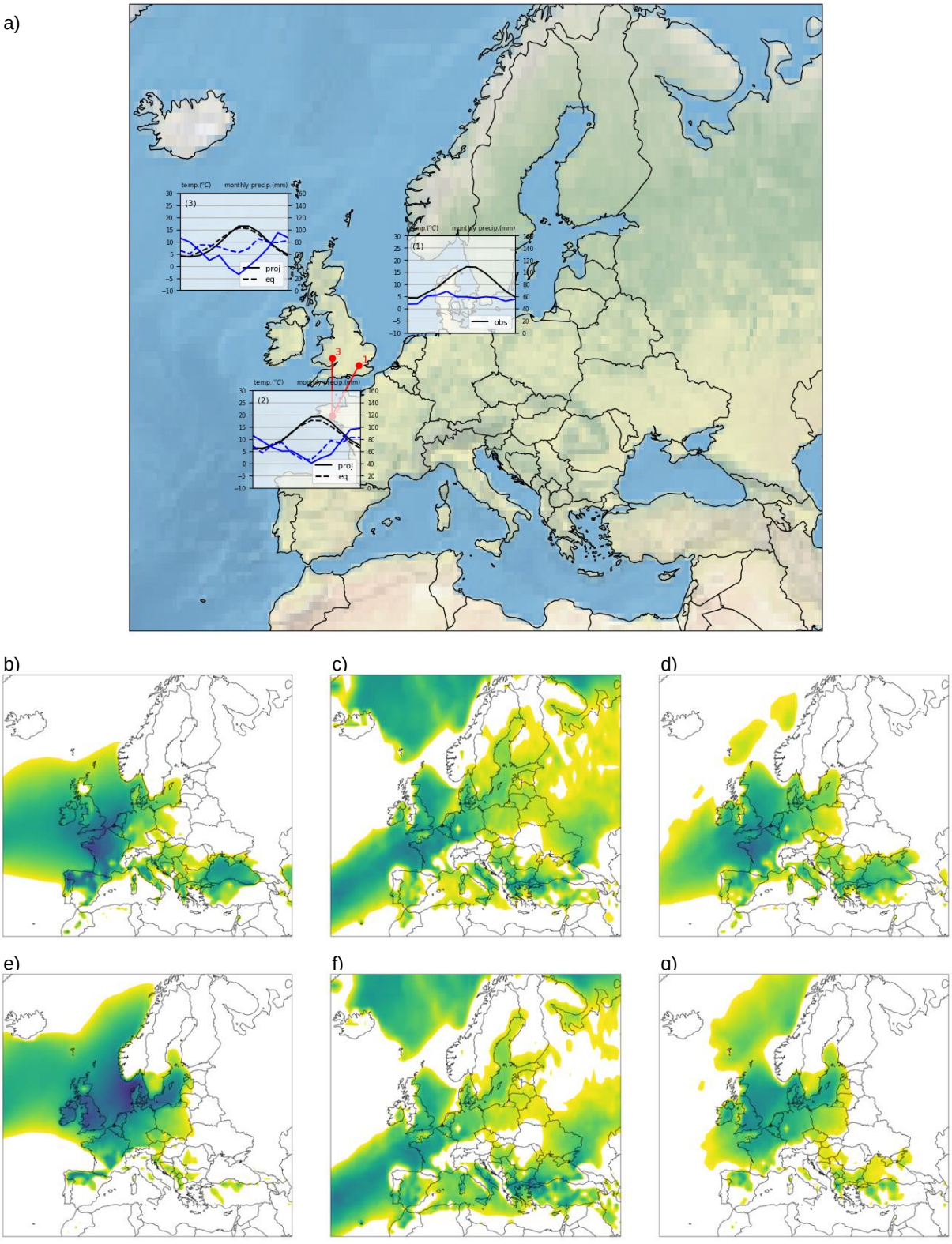

Figure S44: Equivalent climate locations for London for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

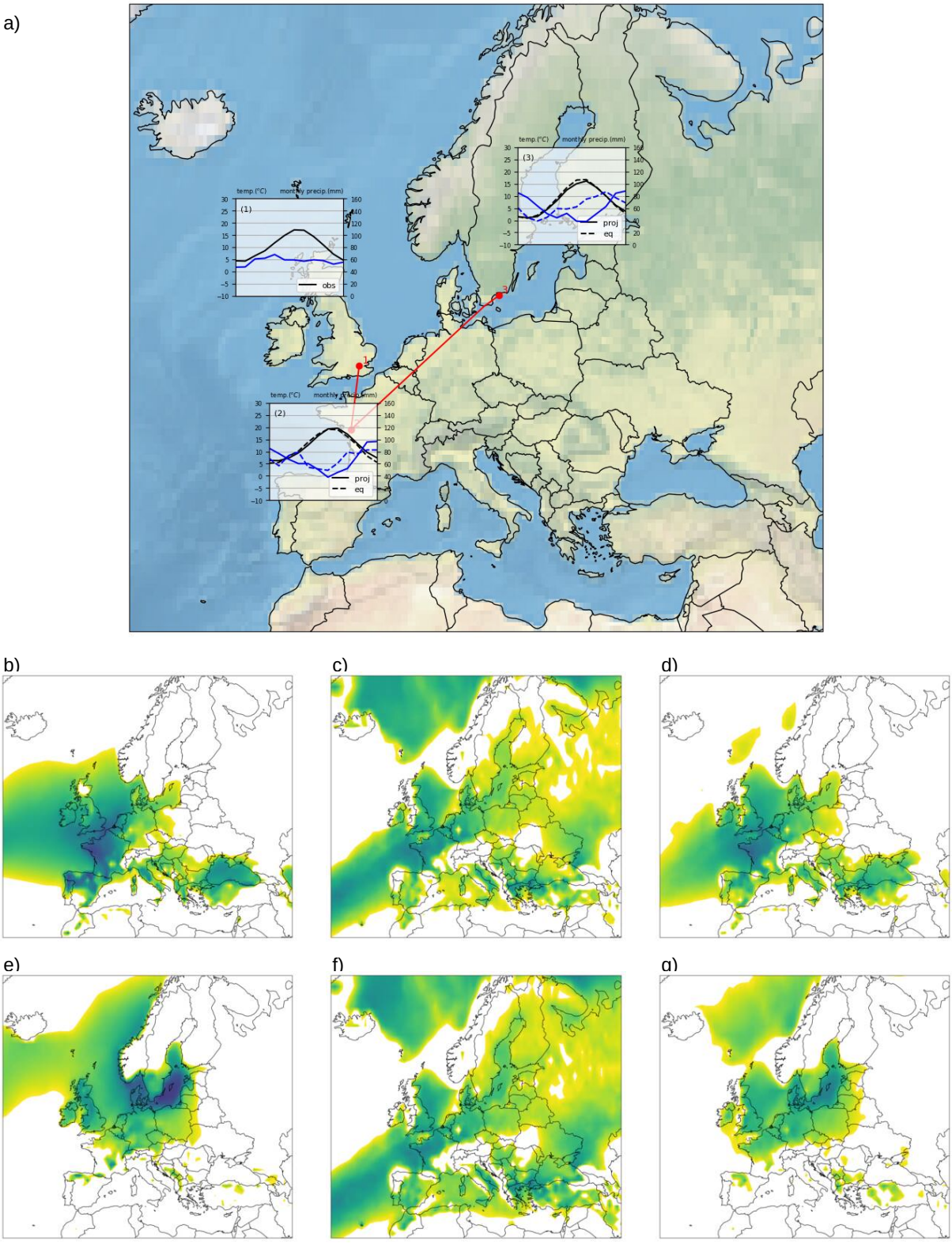

Figure S45: Equivalent climate locations for London for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

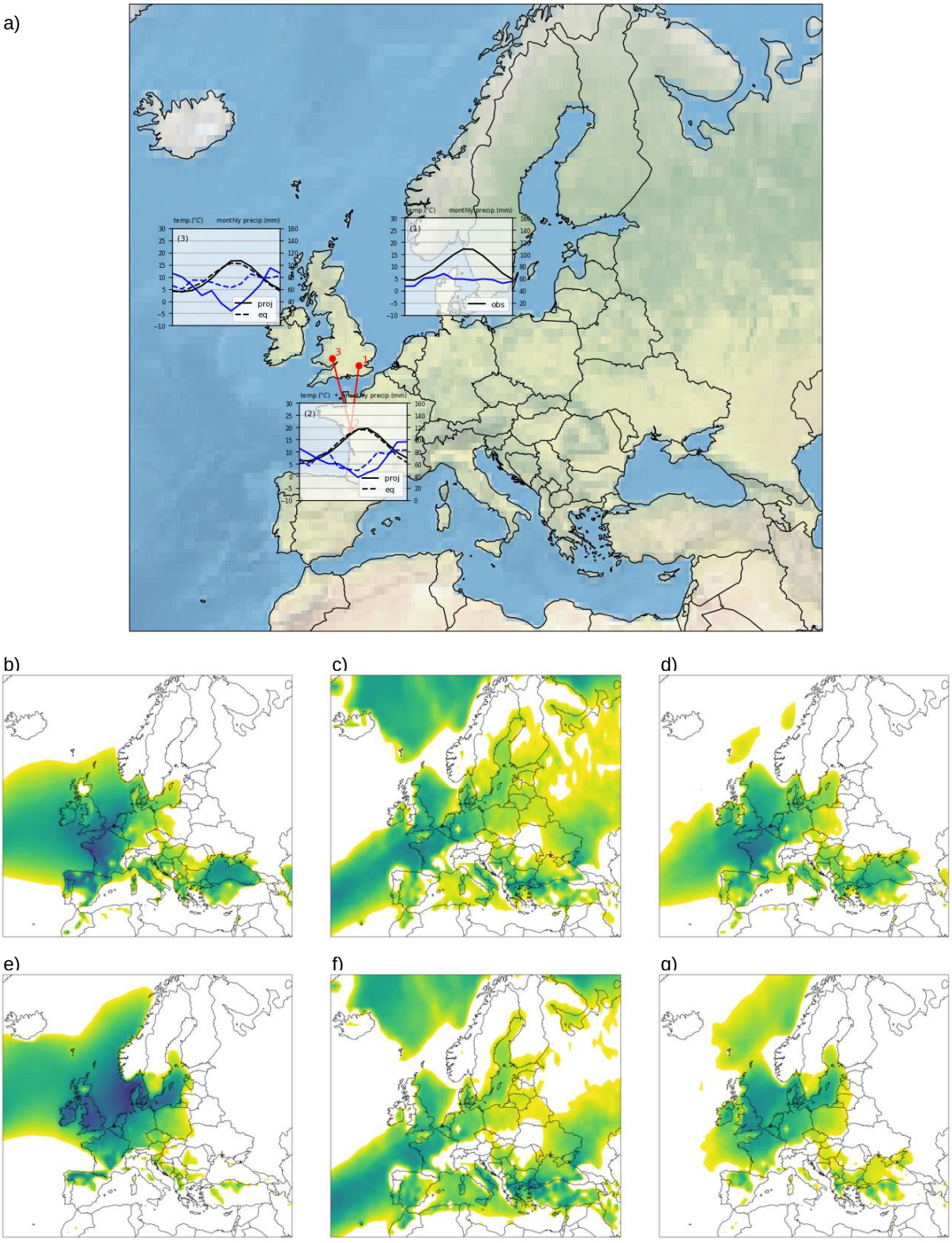

Figure S46: Equivalent climate locations for London for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

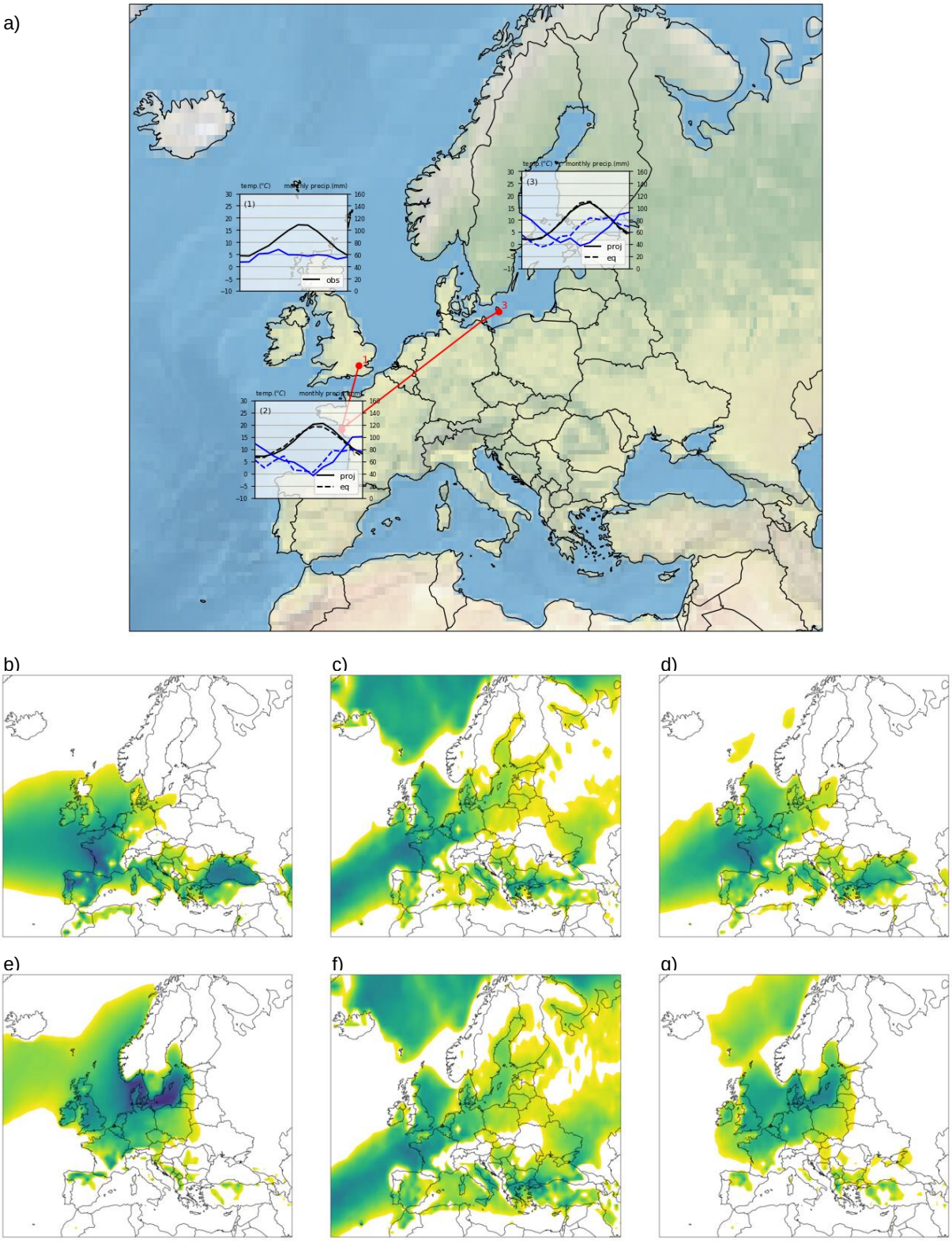

Figure S47: Equivalent climate locations for London for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

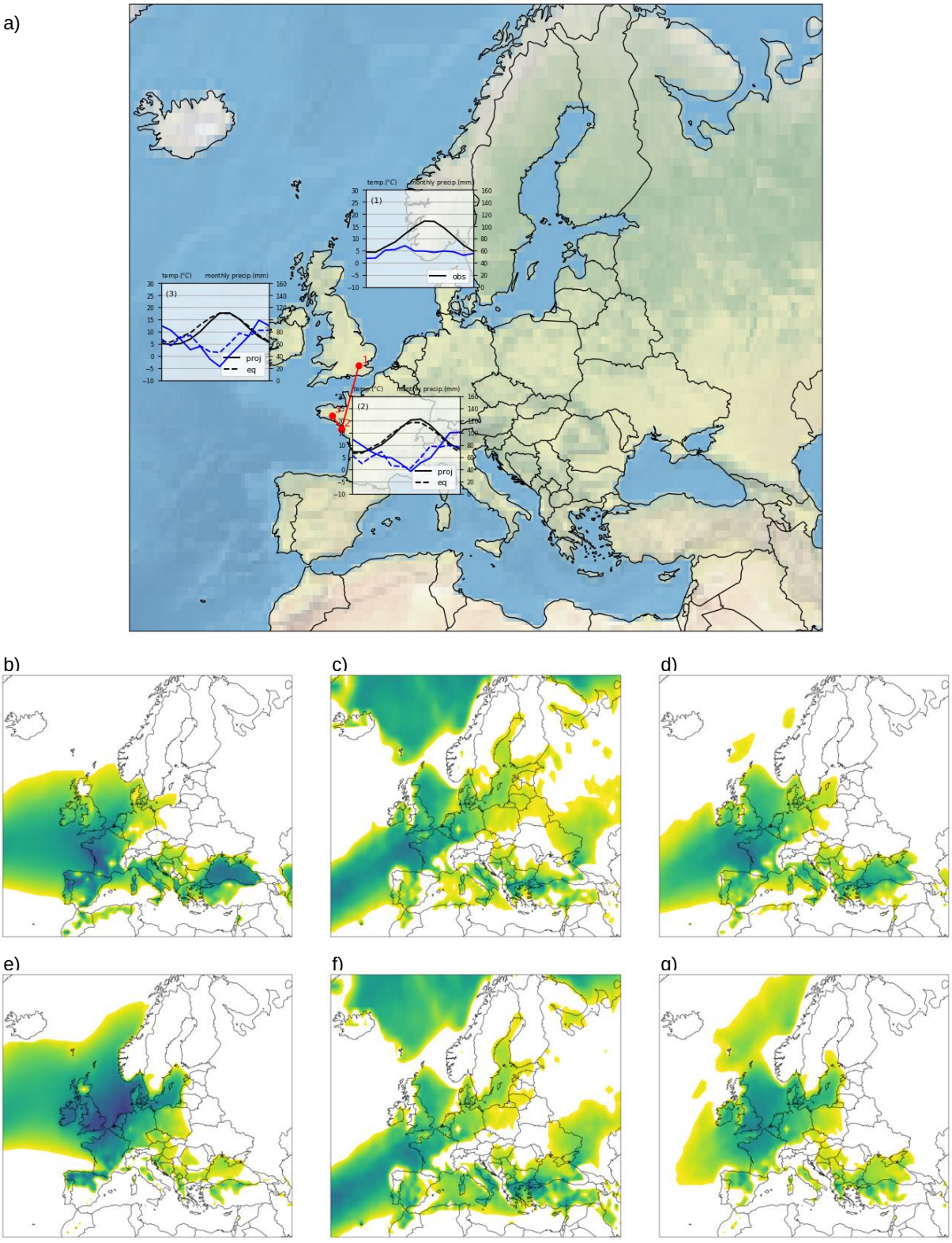

Figure S48: Equivalent climate locations for London for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

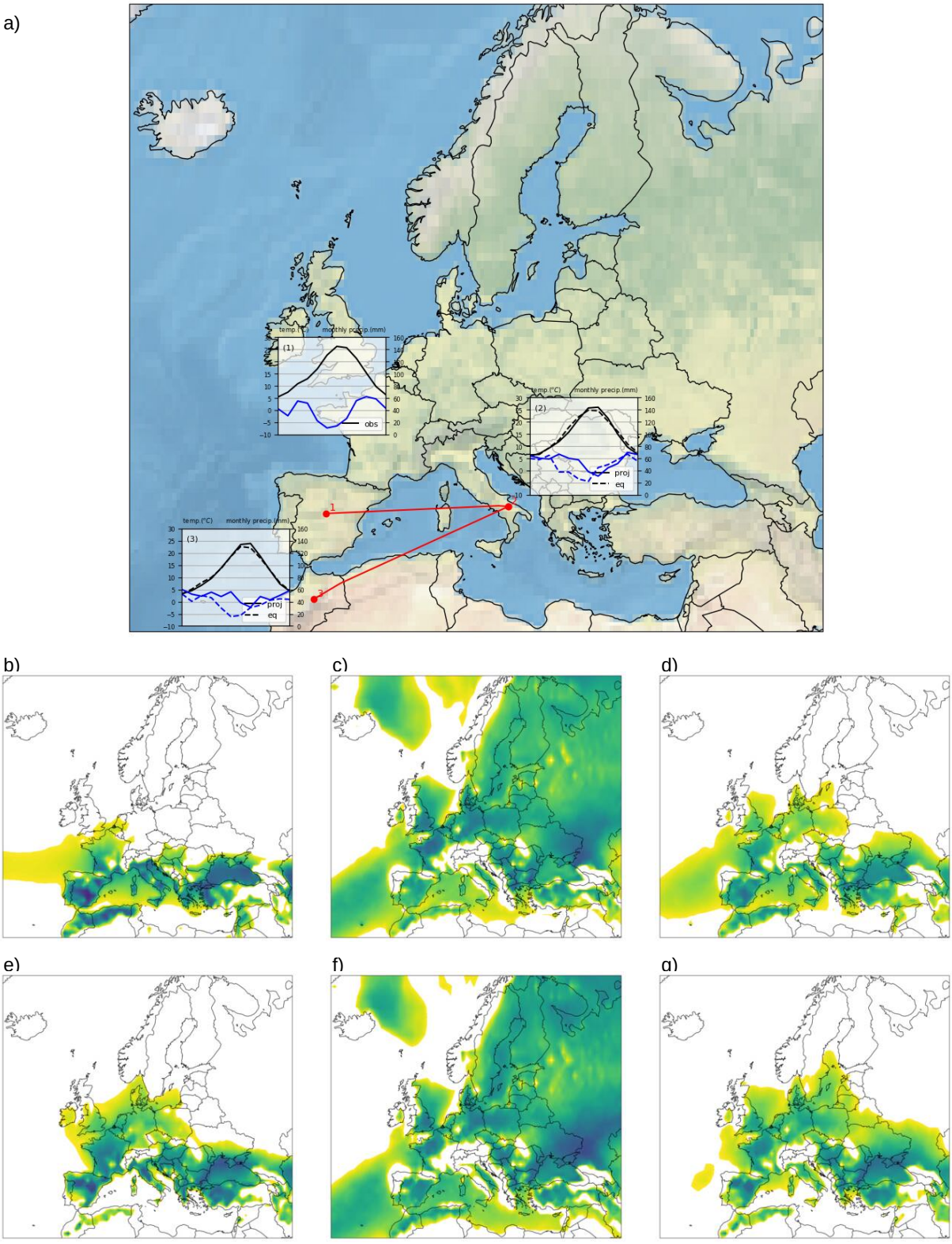

Figure S49: Equivalent climate locations for Madrid for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

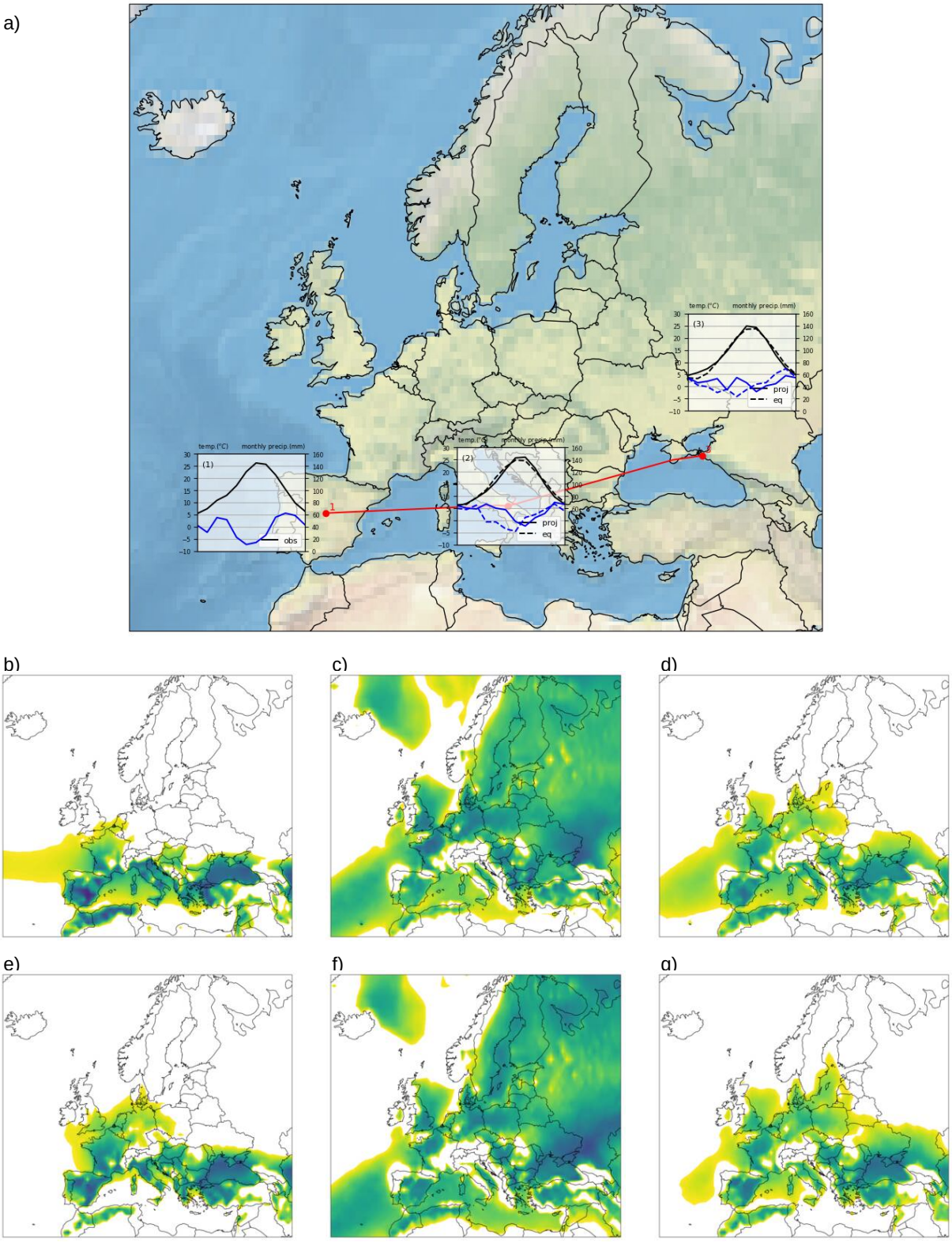

Figure S50: Equivalent climate locations for Madrid for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

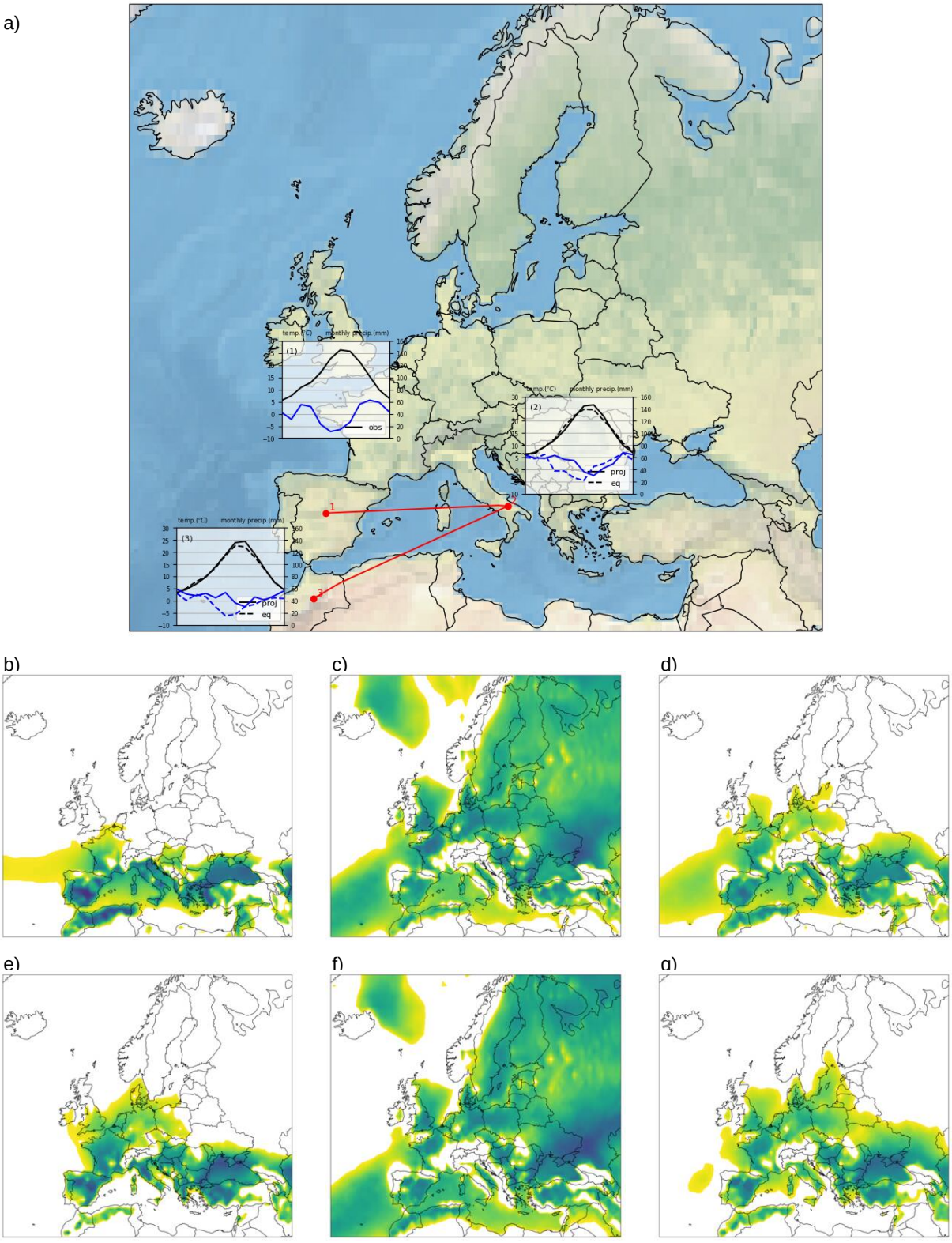

Figure S51: Equivalent climate locations for Madrid for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

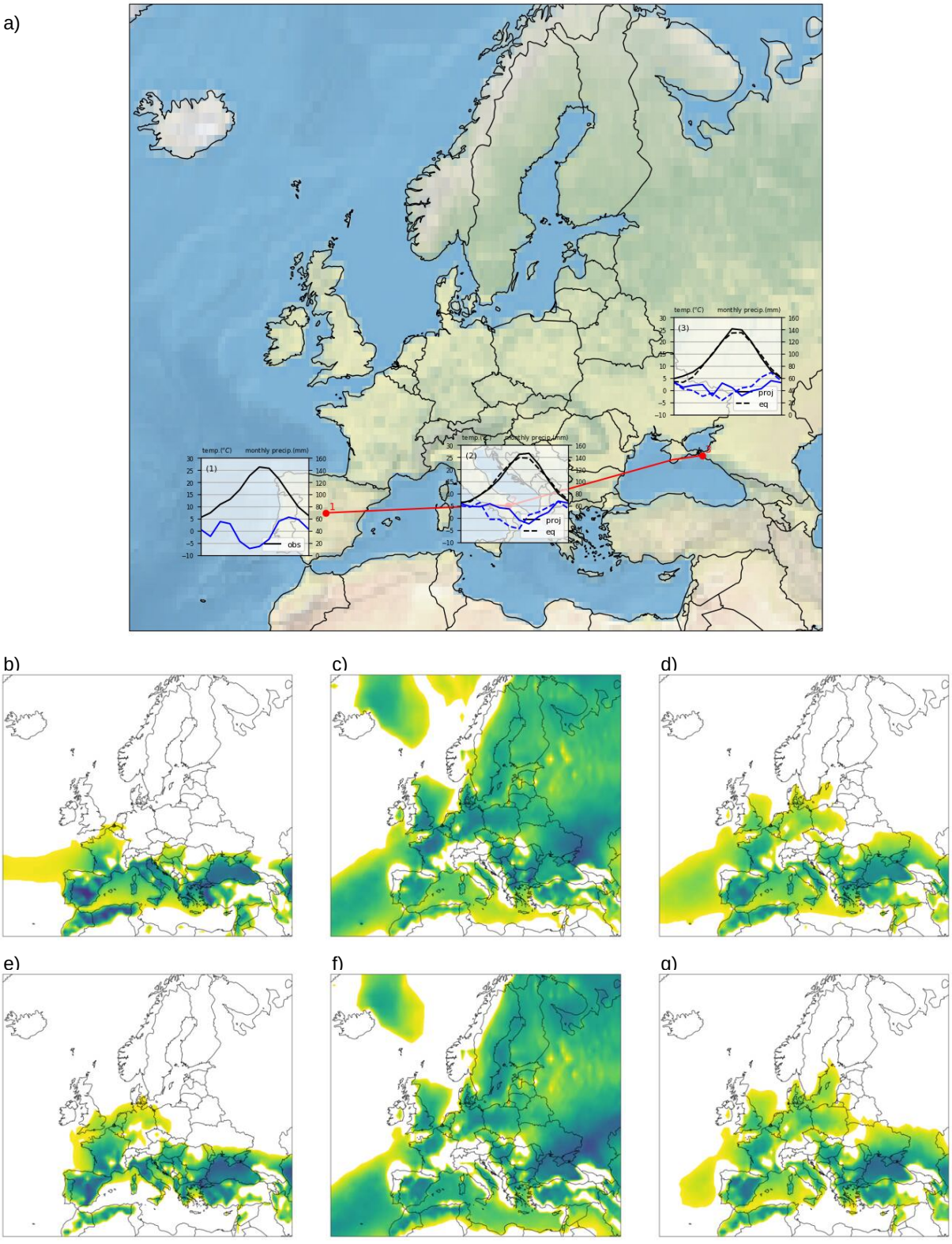

Figure S52: Equivalent climate locations for Madrid for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

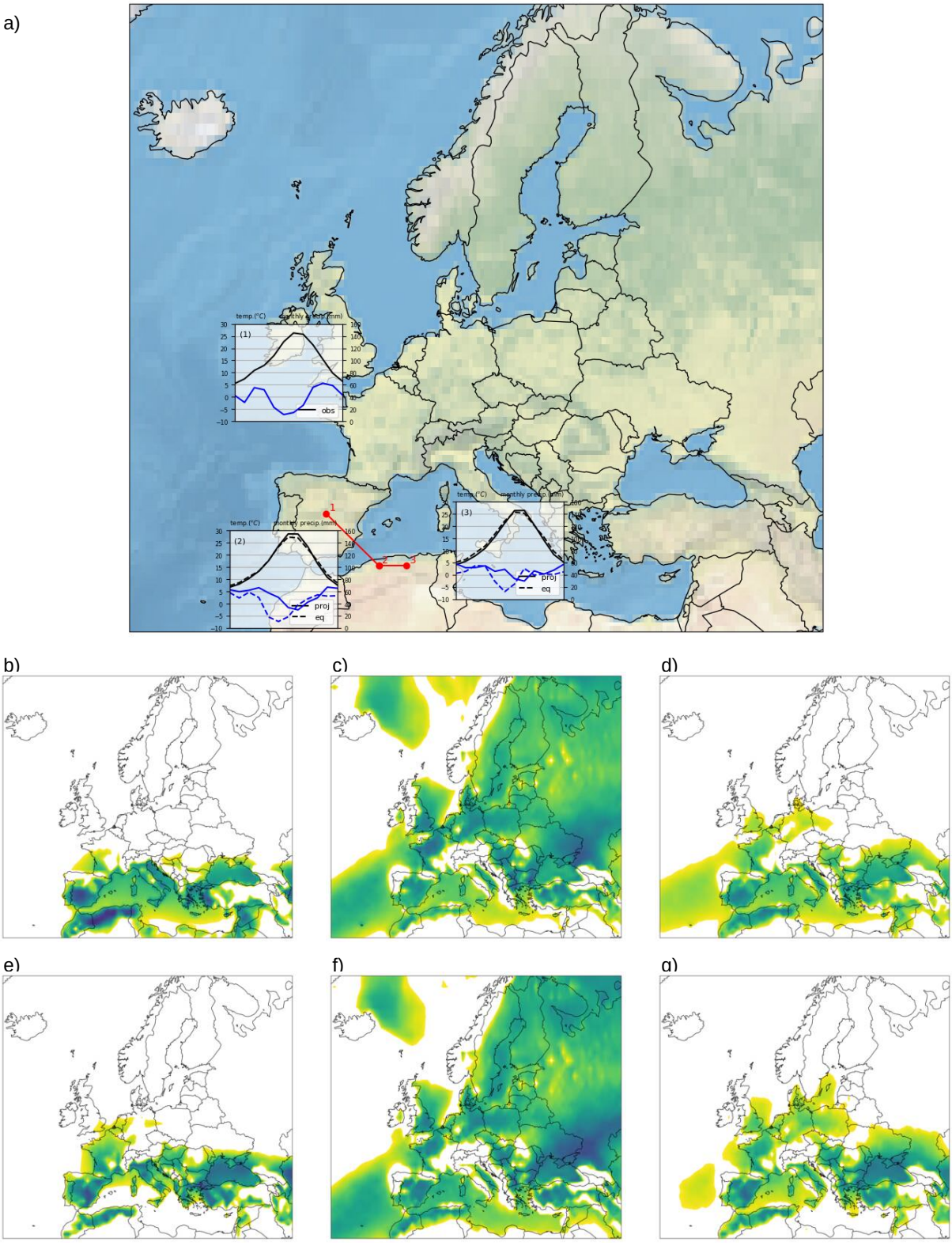

Figure S53: Equivalent climate locations for Madrid for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

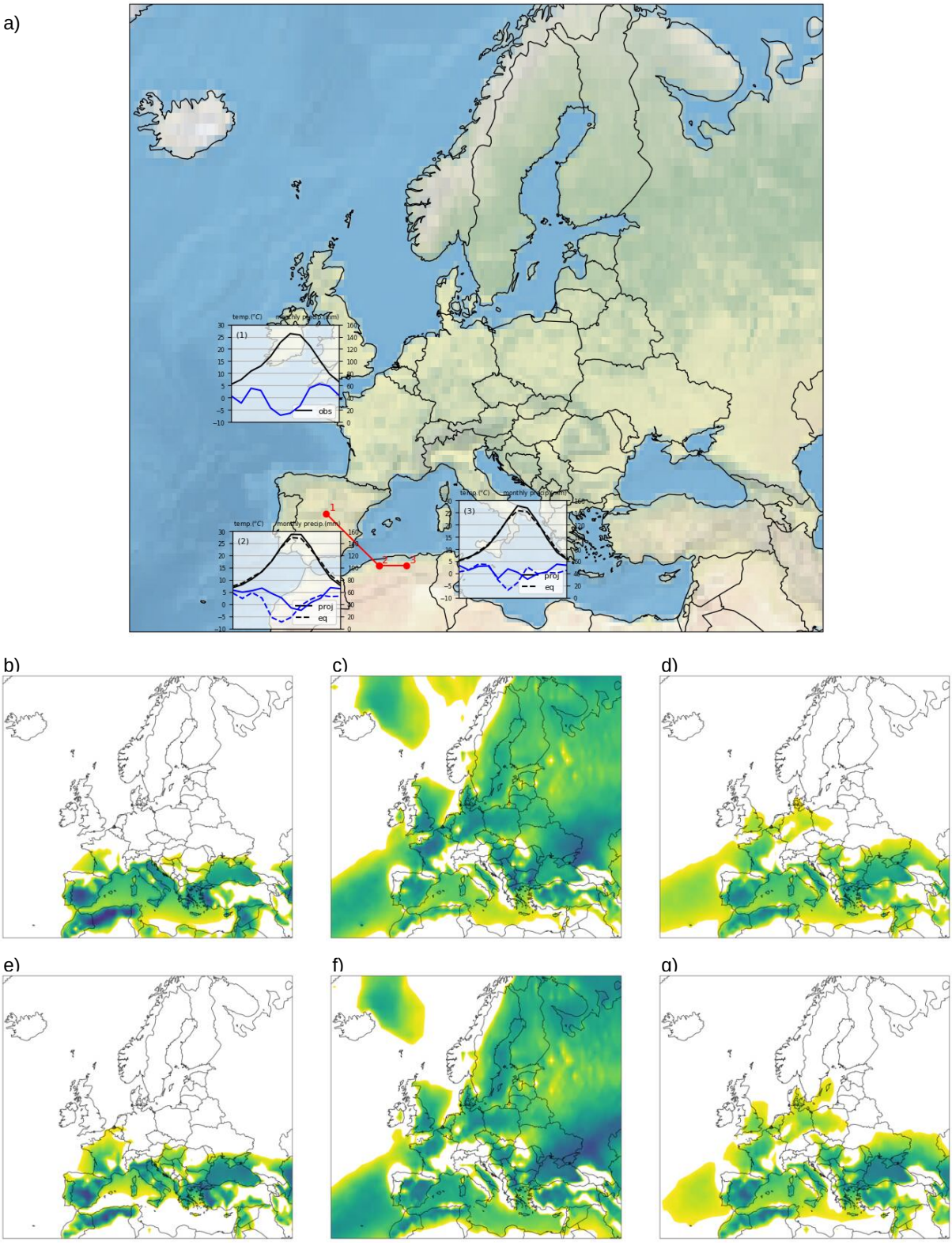

Figure S54: Equivalent climate locations for Madrid for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

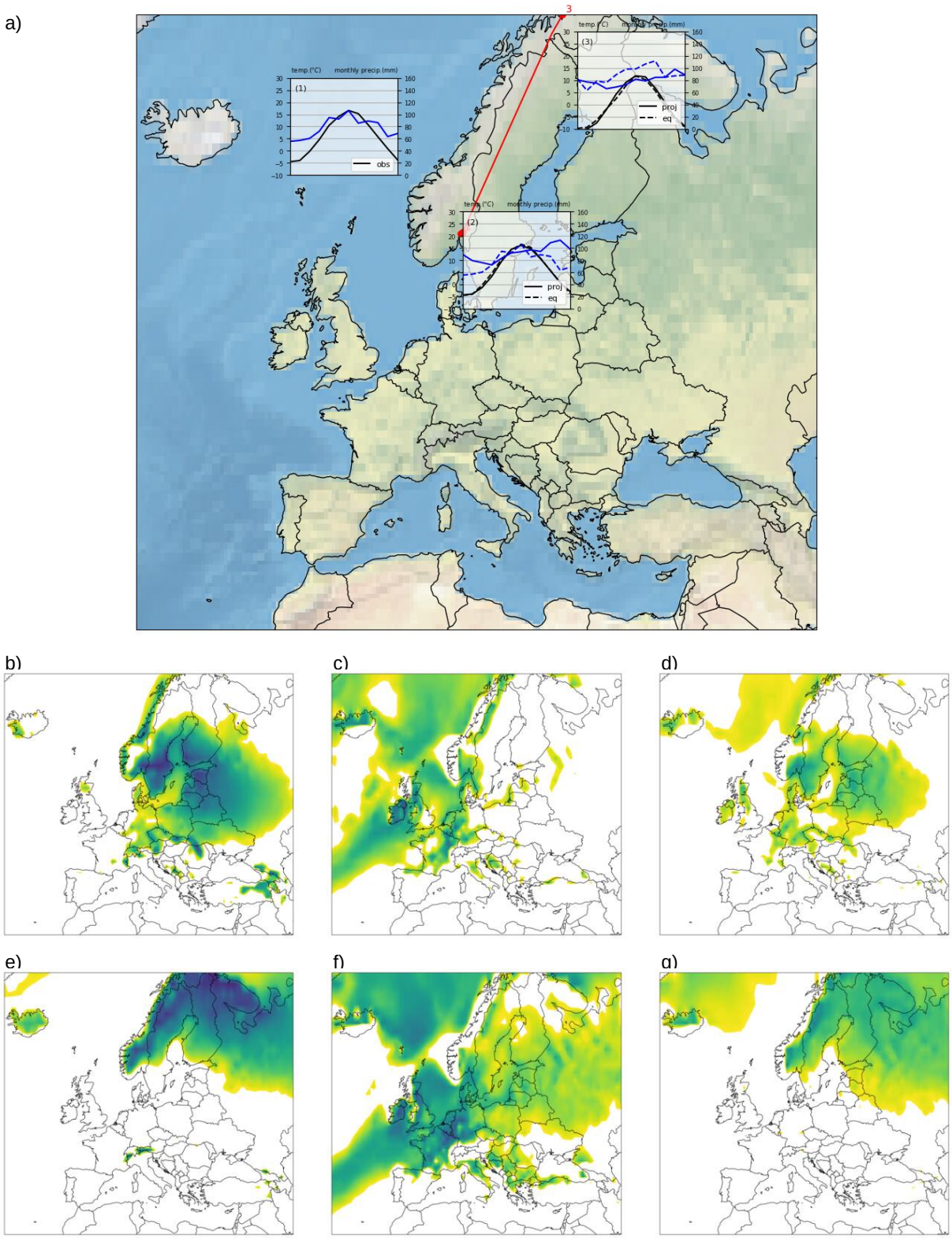

Figure S55: Equivalent climate locations for Oslo for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

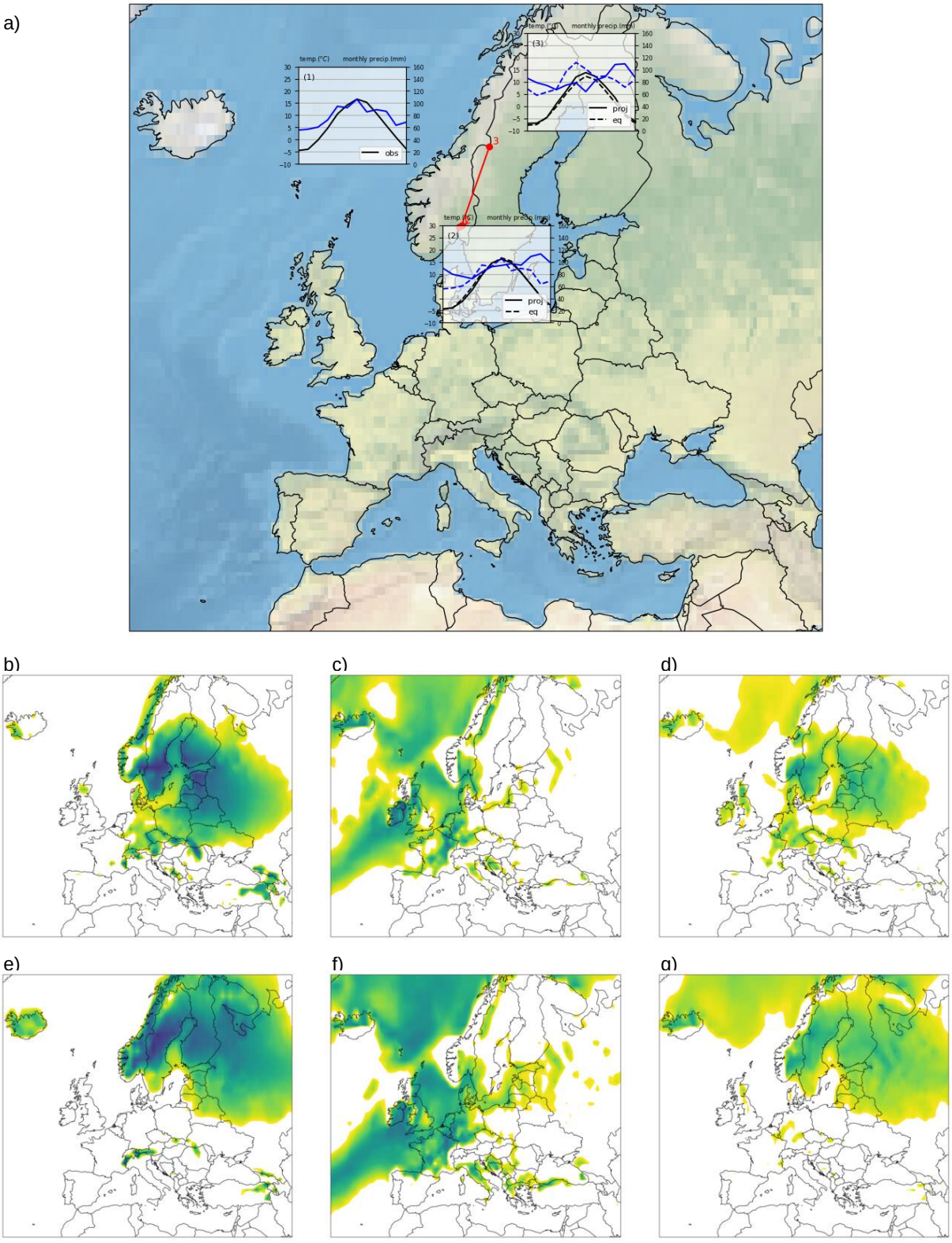

Figure S56: Equivalent climate locations for Oslo for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

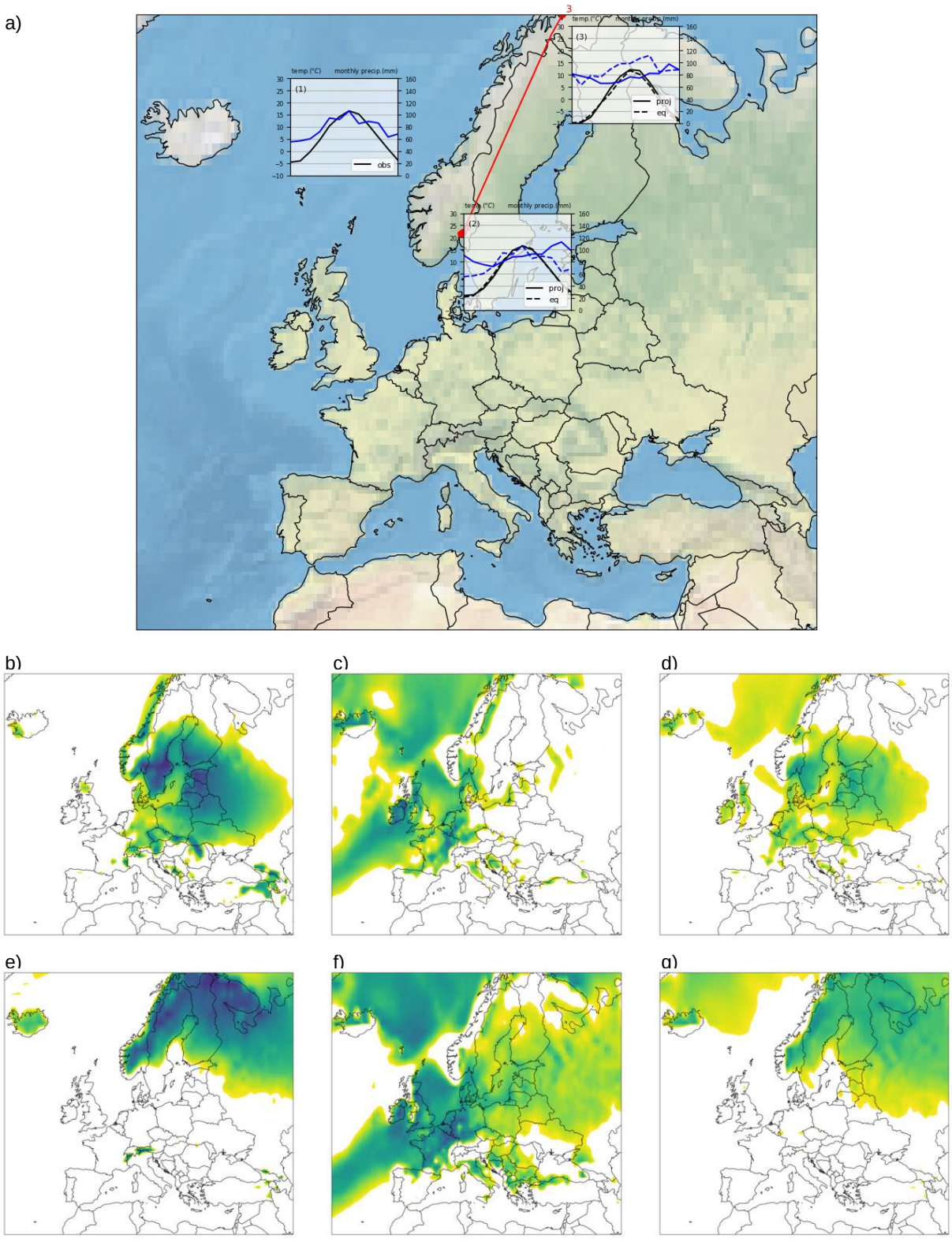

Figure S57: Equivalent climate locations for Oslo for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

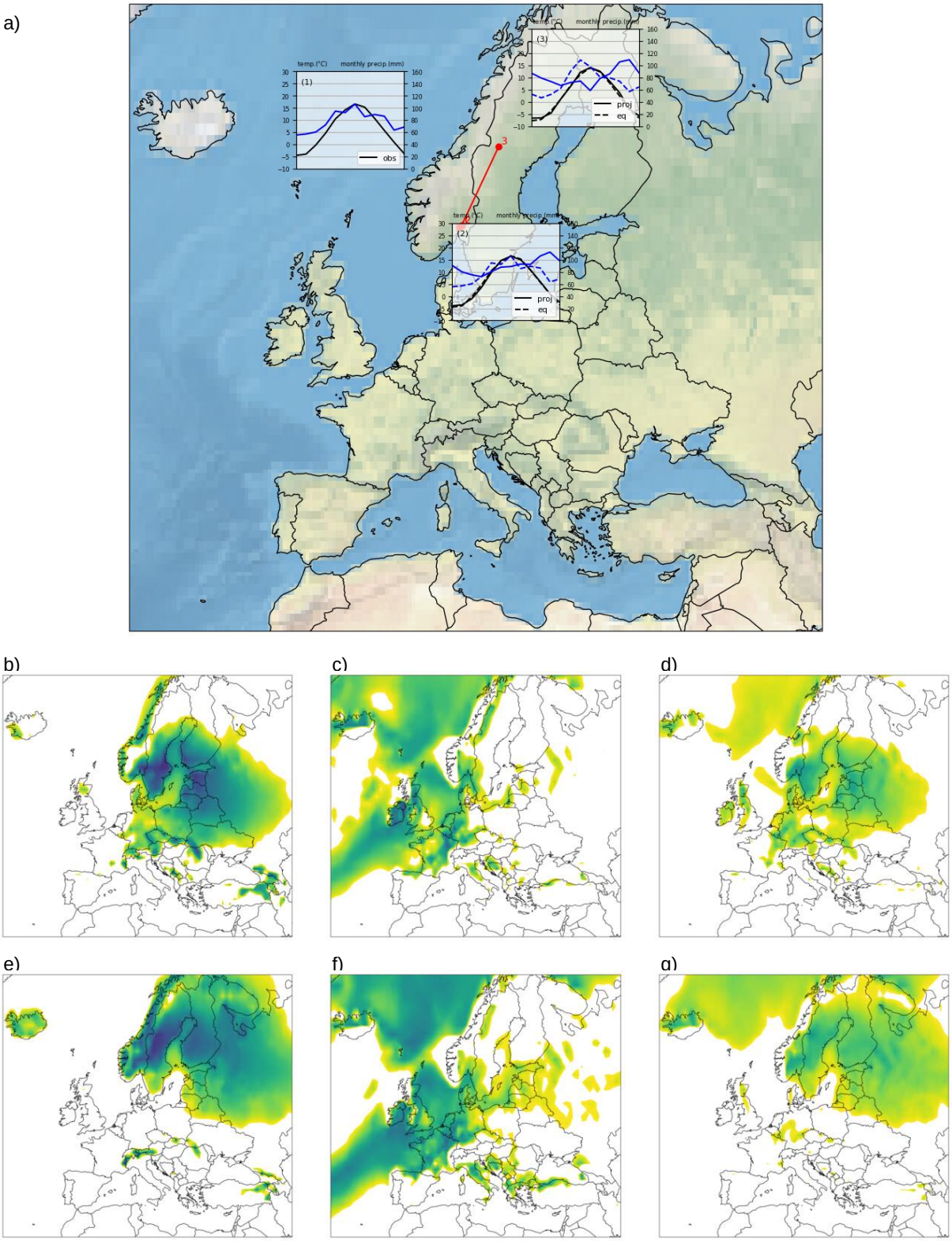

Figure S58: Equivalent climate locations for Oslo for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

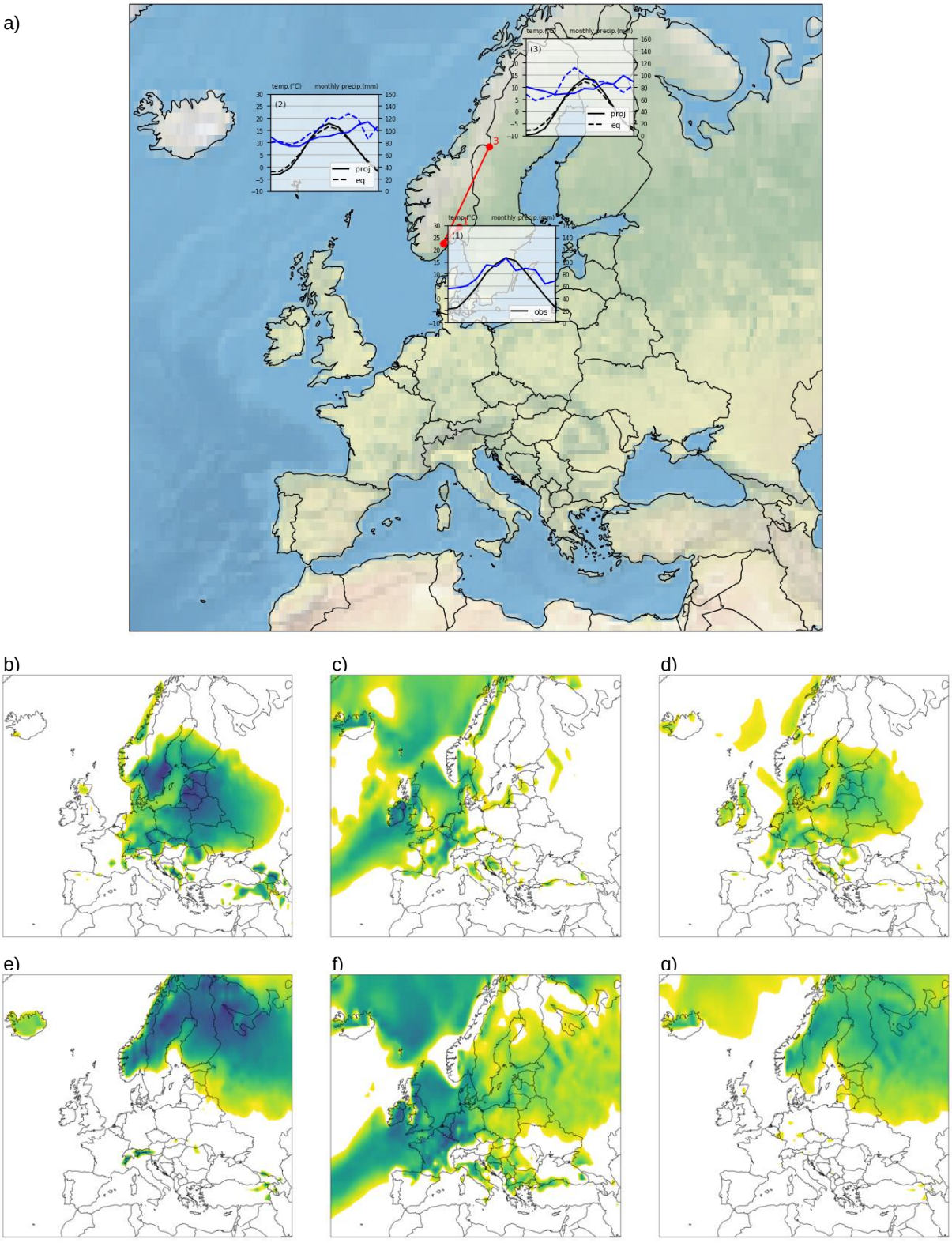

Figure S59: Equivalent climate locations for Oslo for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

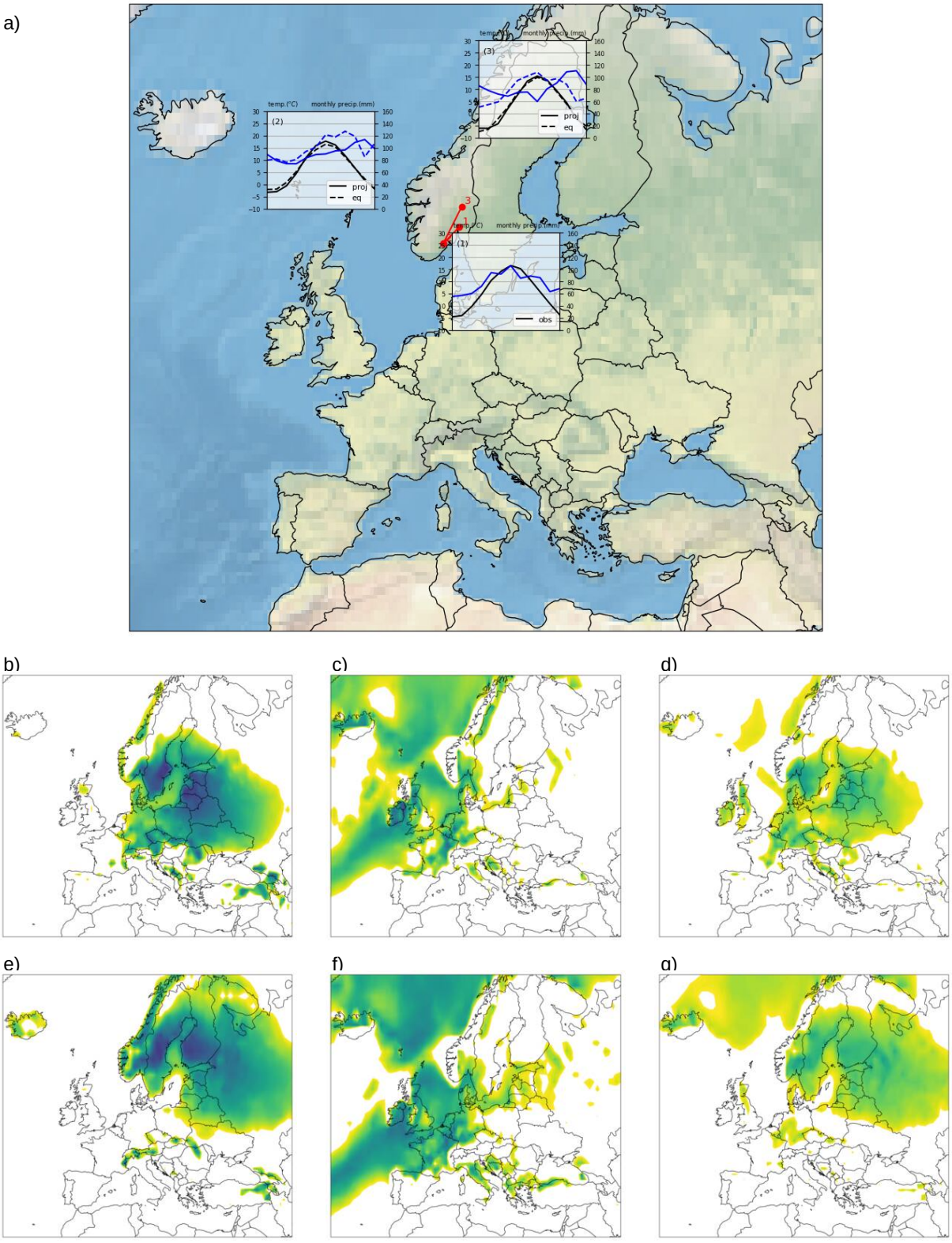

Figure S60: Equivalent climate locations for Oslo for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

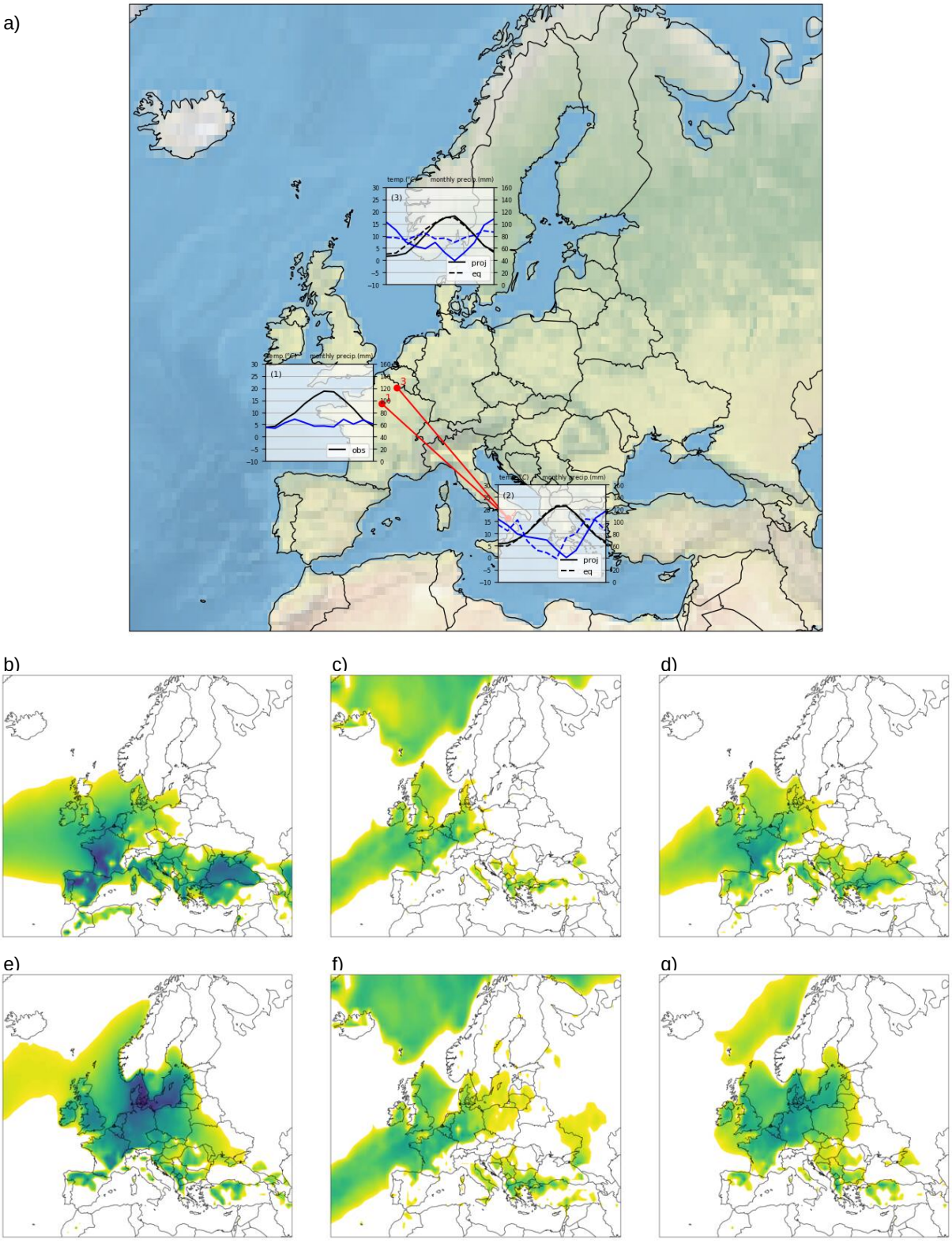

Figure S61: Equivalent climate locations for Paris for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

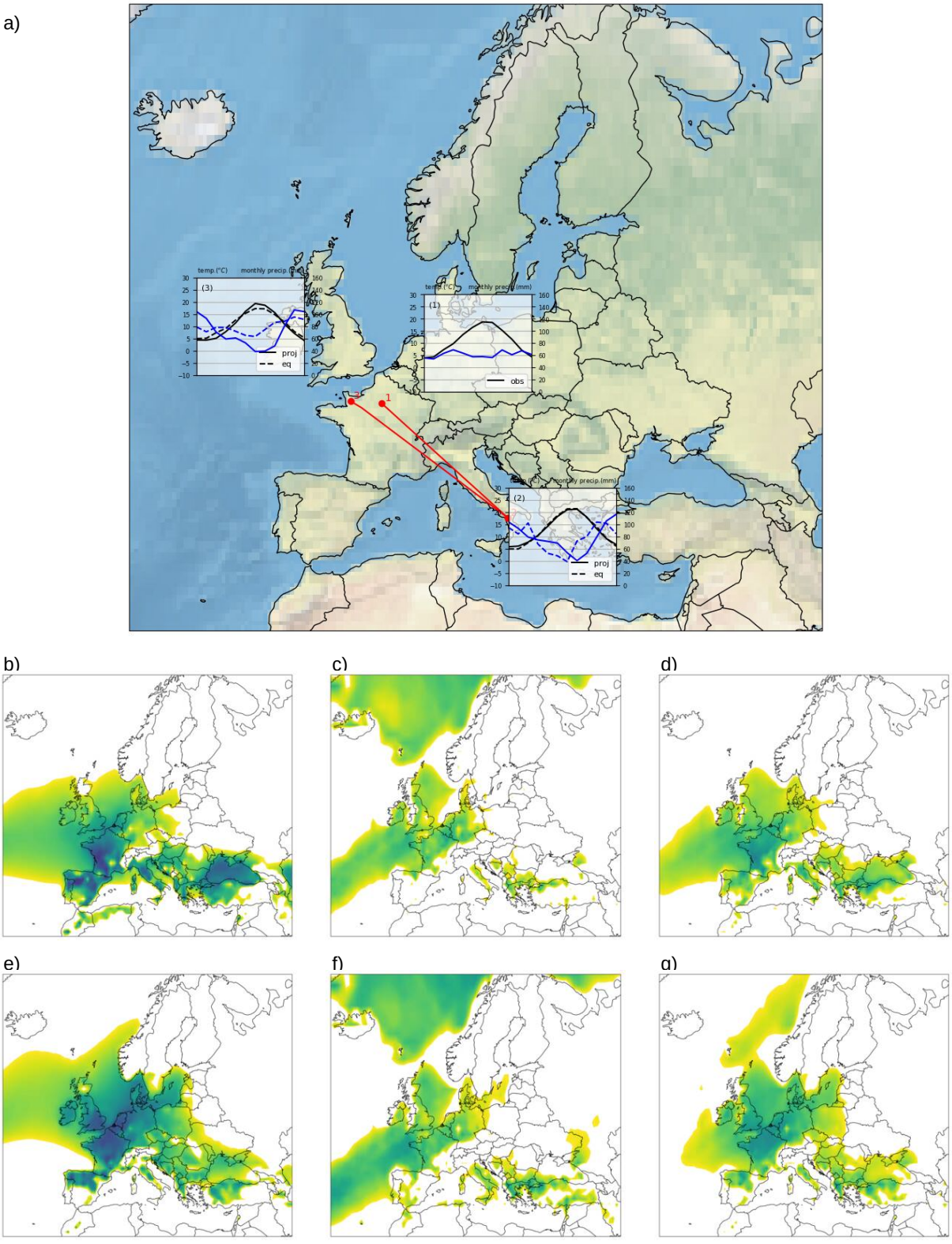

Figure S62: Equivalent climate locations for Paris for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

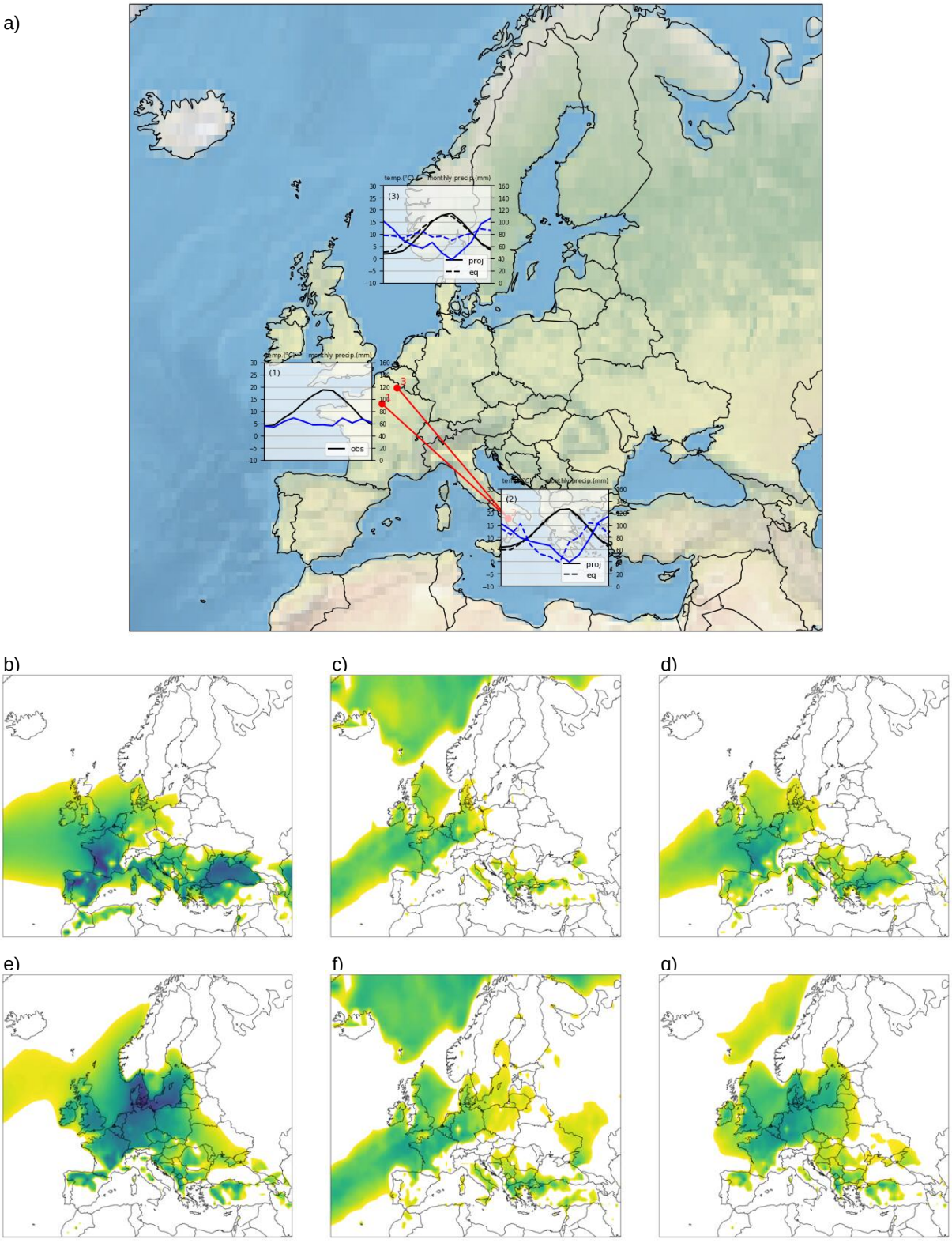

Figure S63: Equivalent climate locations for Paris for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

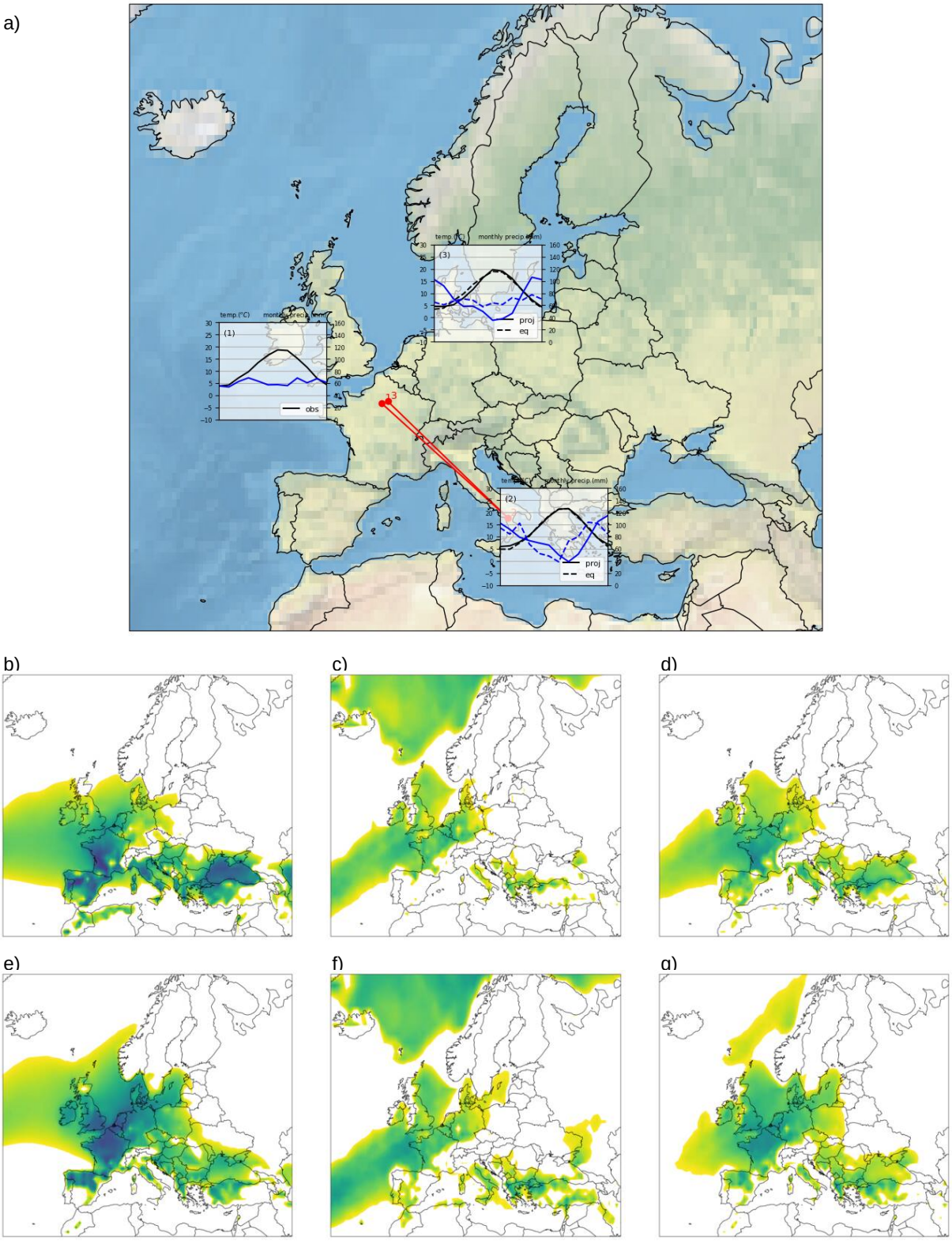

Figure S64: Equivalent climate locations for Paris for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

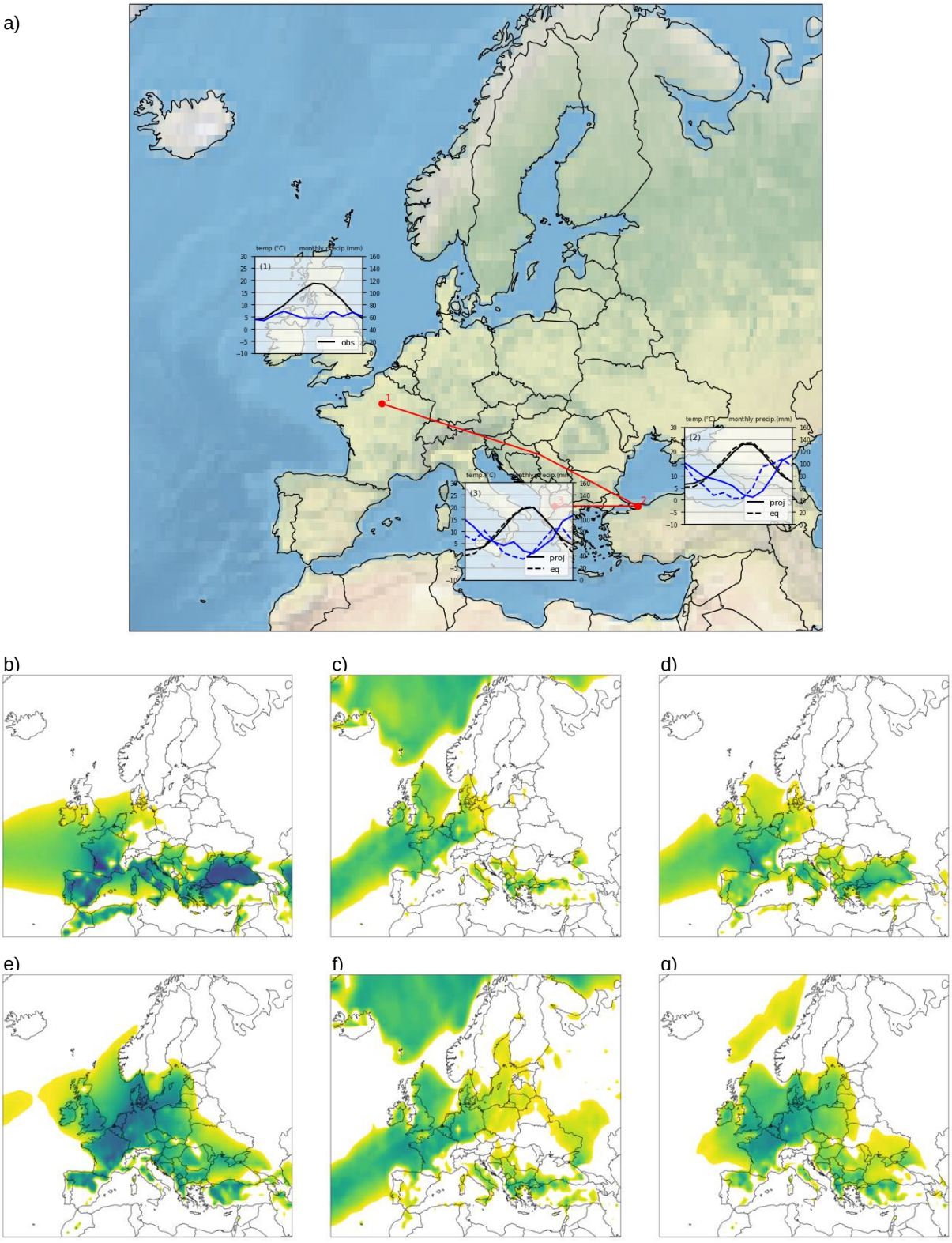

Figure S65: Equivalent climate locations for Paris for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

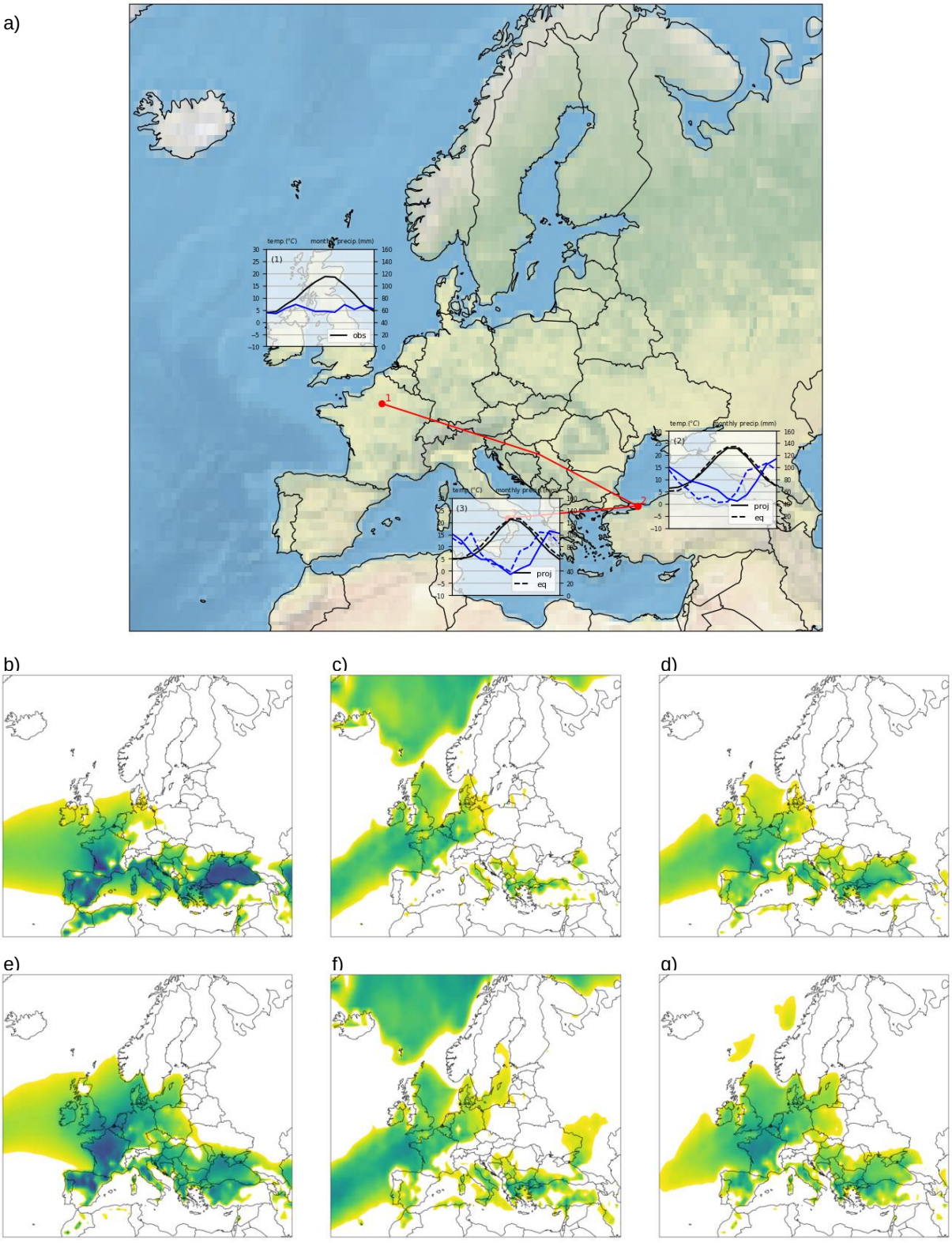

Figure S66: Equivalent climate locations for Paris for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

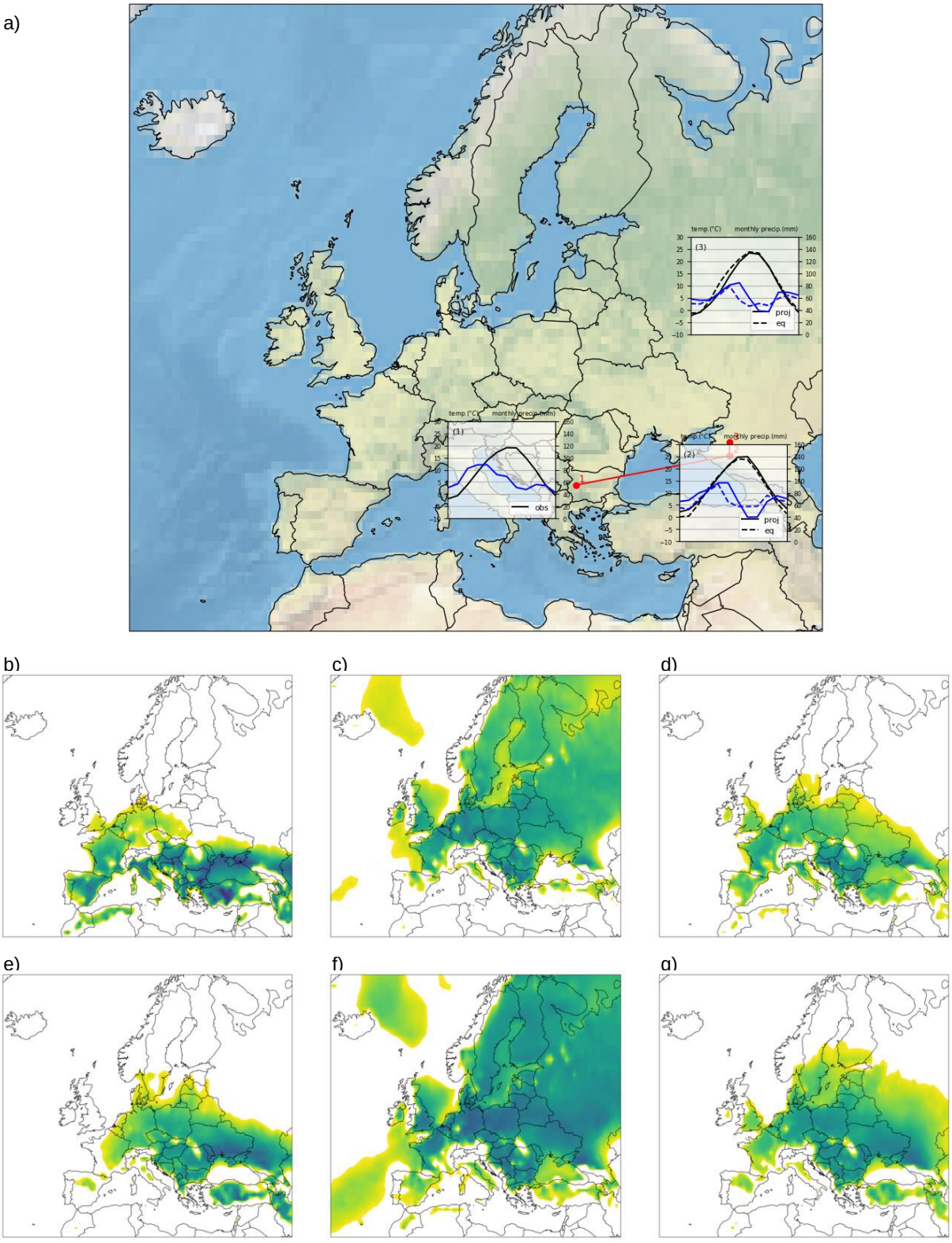

Figure S67: Equivalent climate locations for Sophia for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

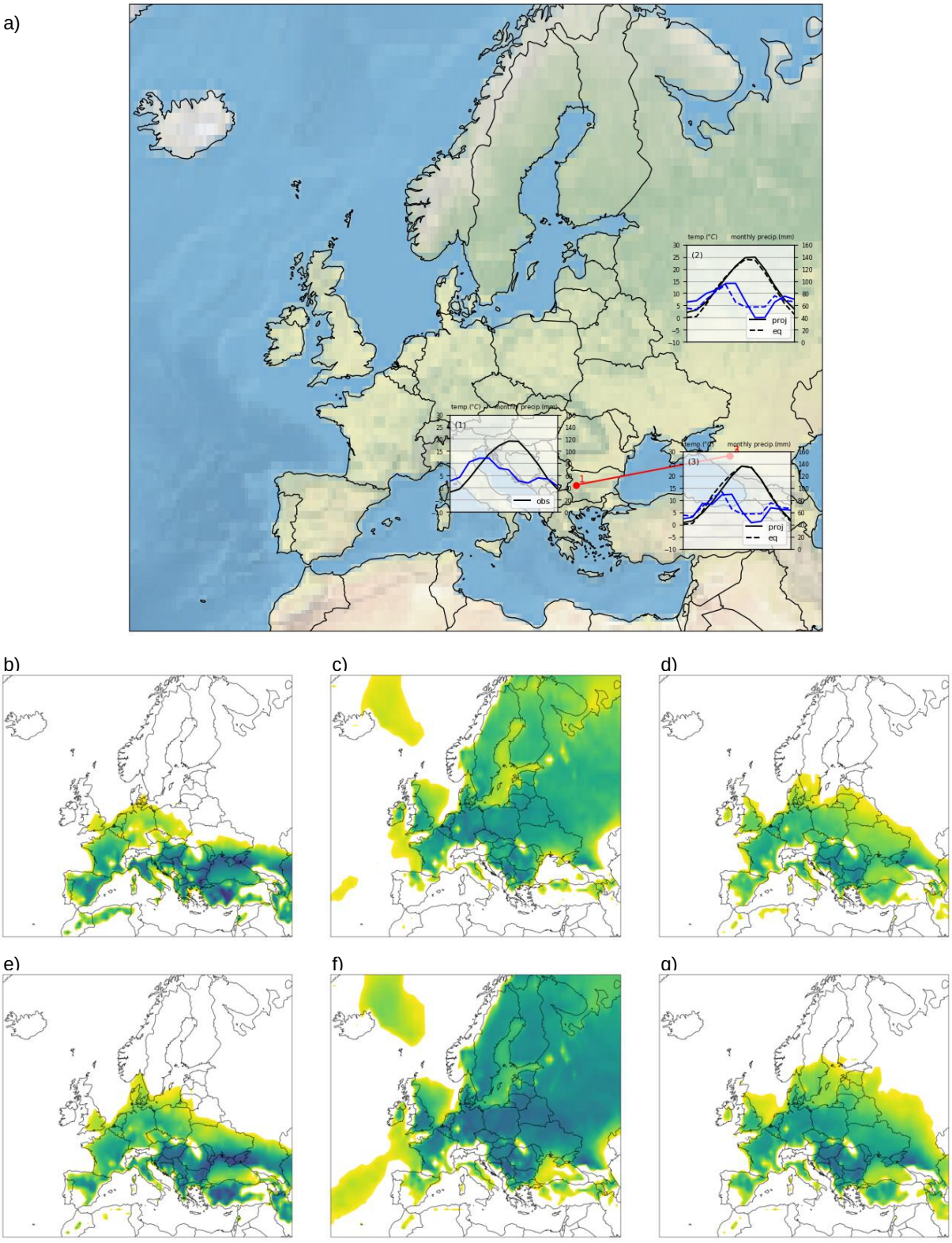

Figure S68: Equivalent climate locations for Sophia for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

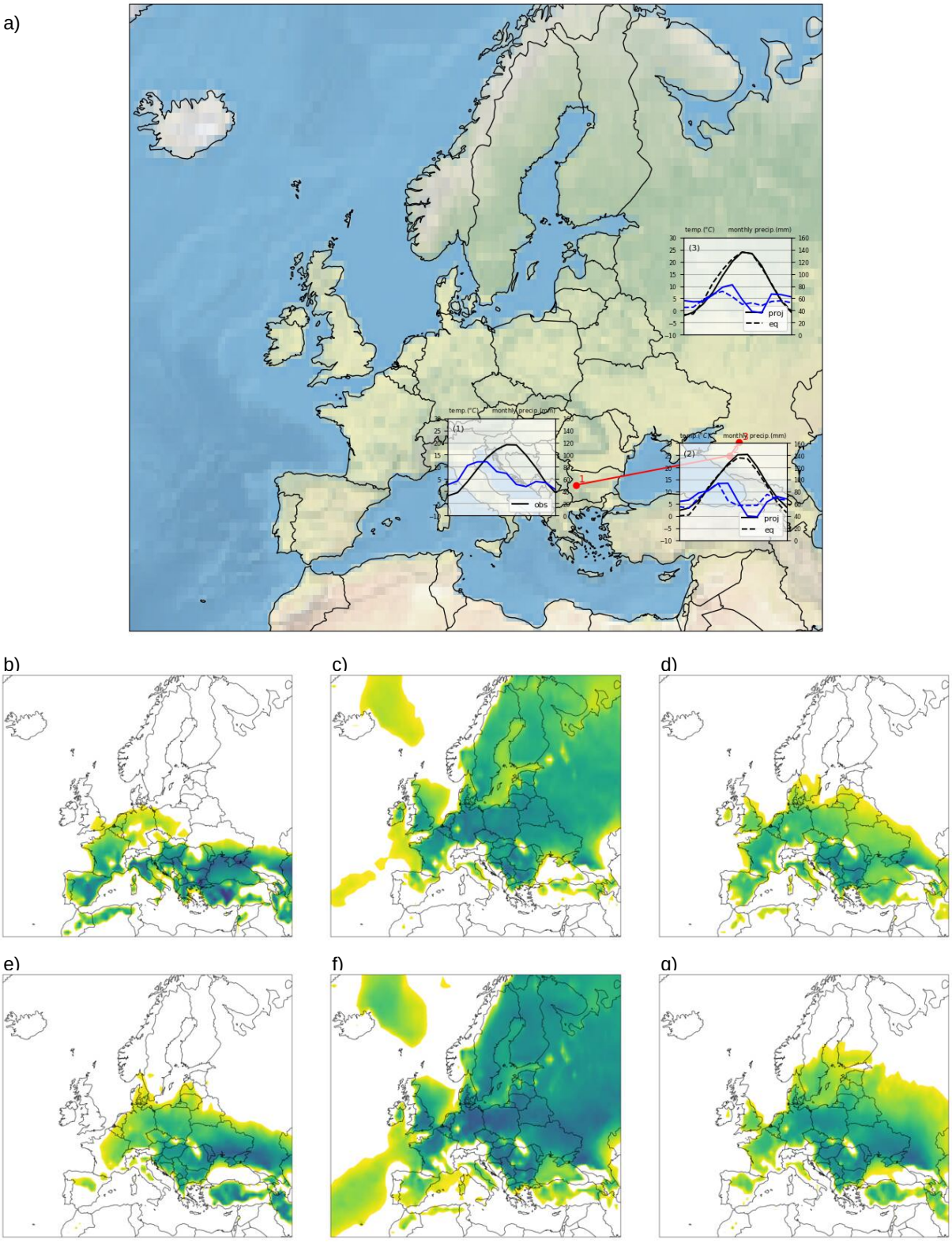

Figure S69: Equivalent climate locations for Sophia for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

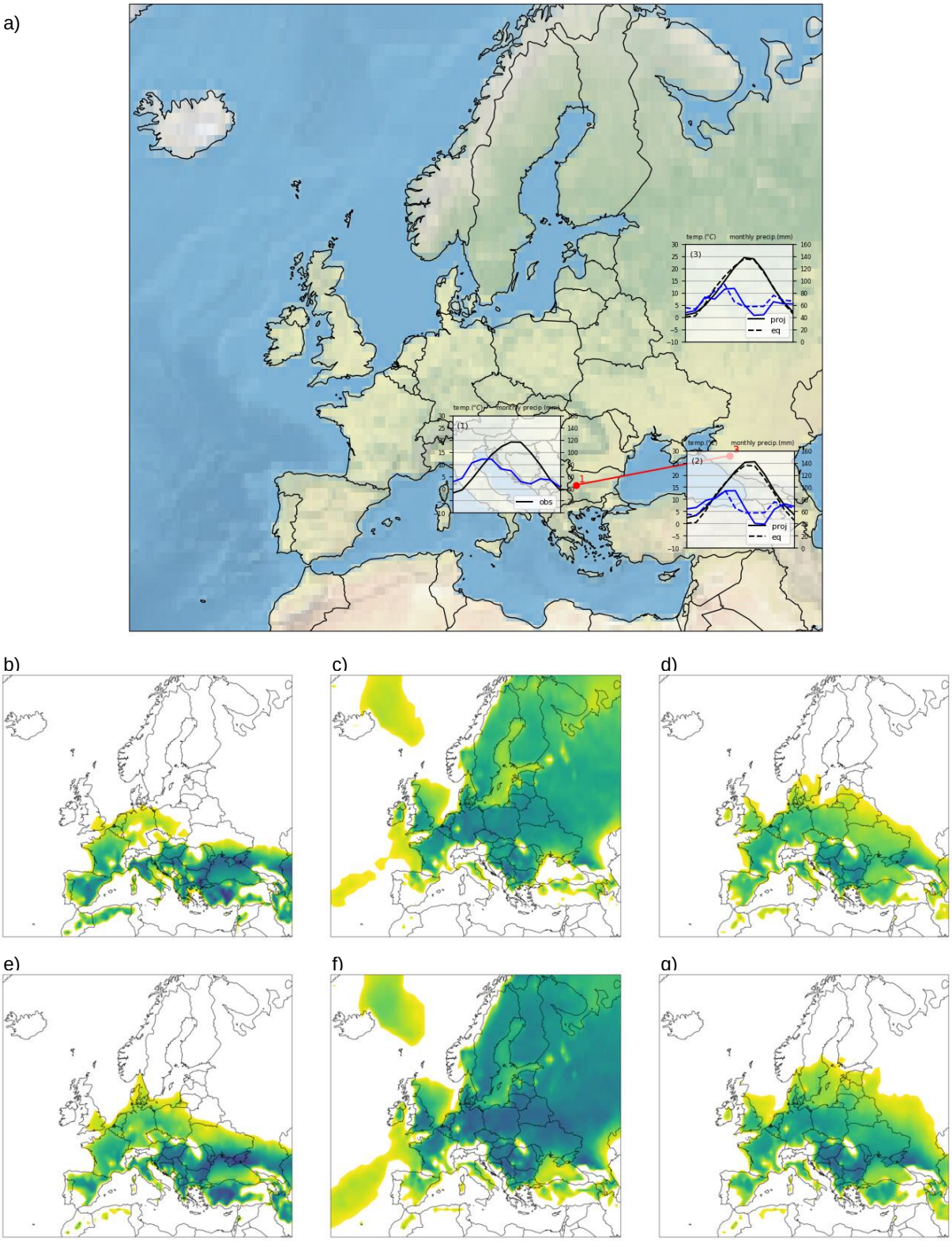

Figure S70: Equivalent climate locations for Sophia for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

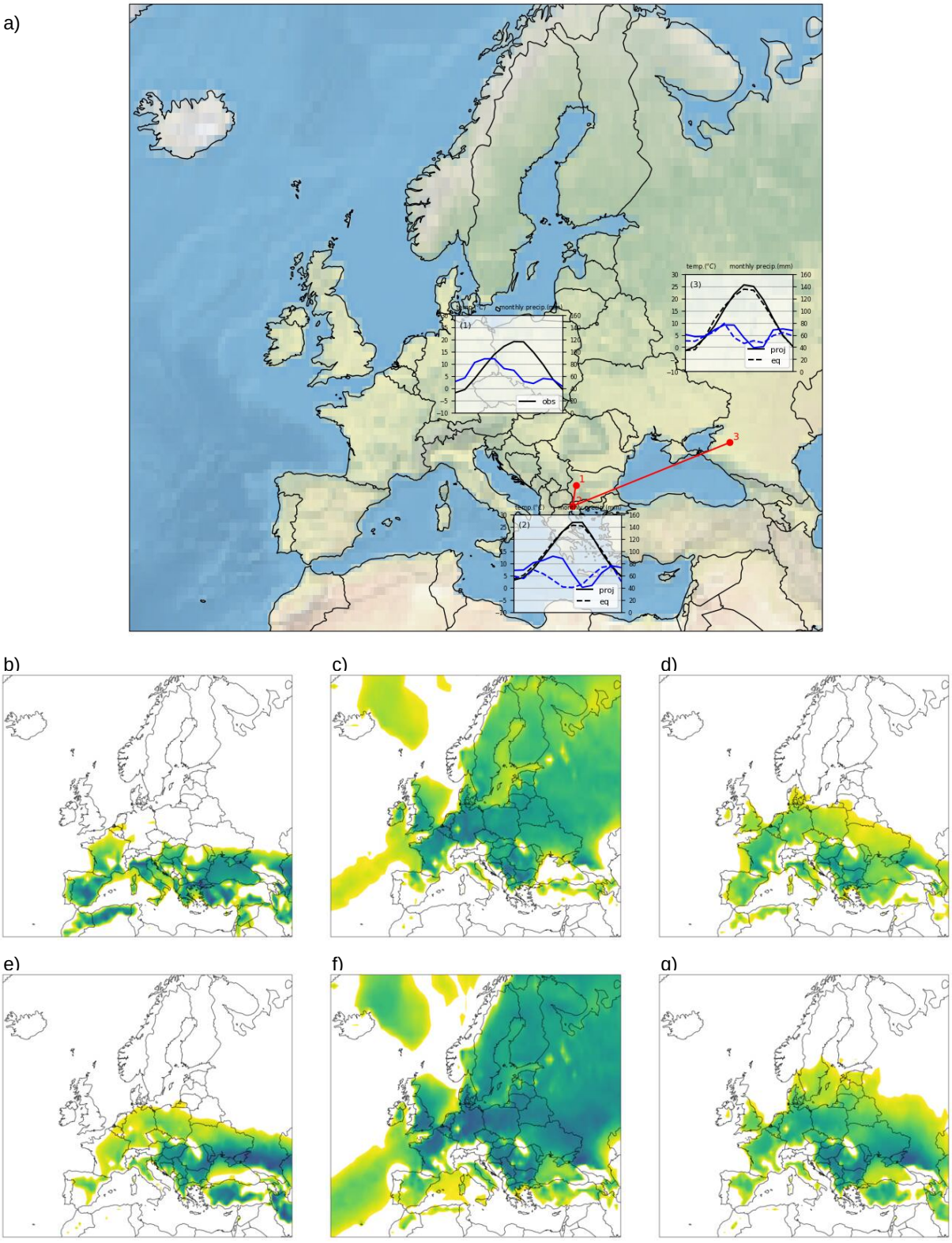

Figure S71: Equivalent climate locations for Sophia for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

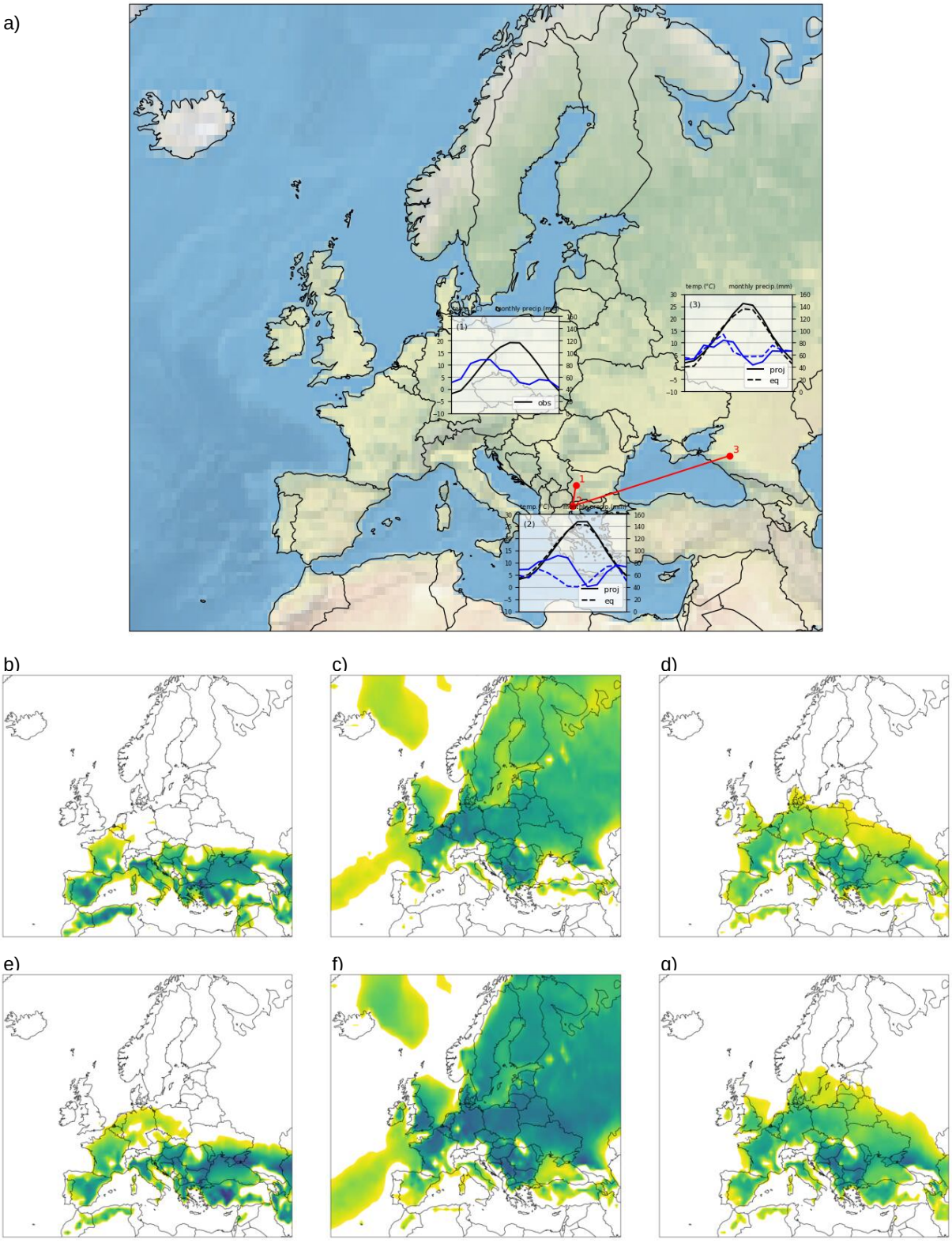

Figure S72: Equivalent climate locations for Sophia for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

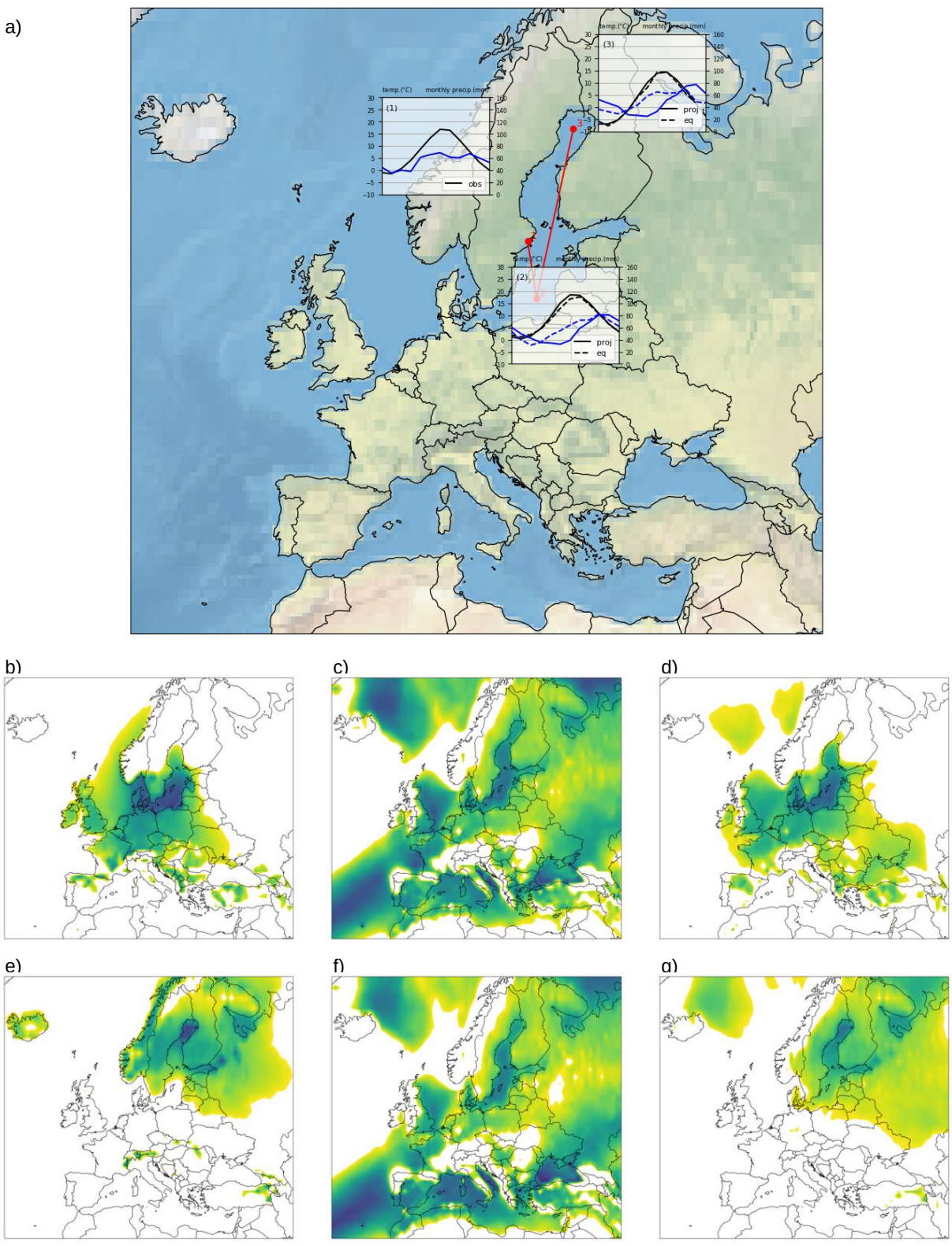

Figure S73: Equivalent climate locations for Stockholm for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

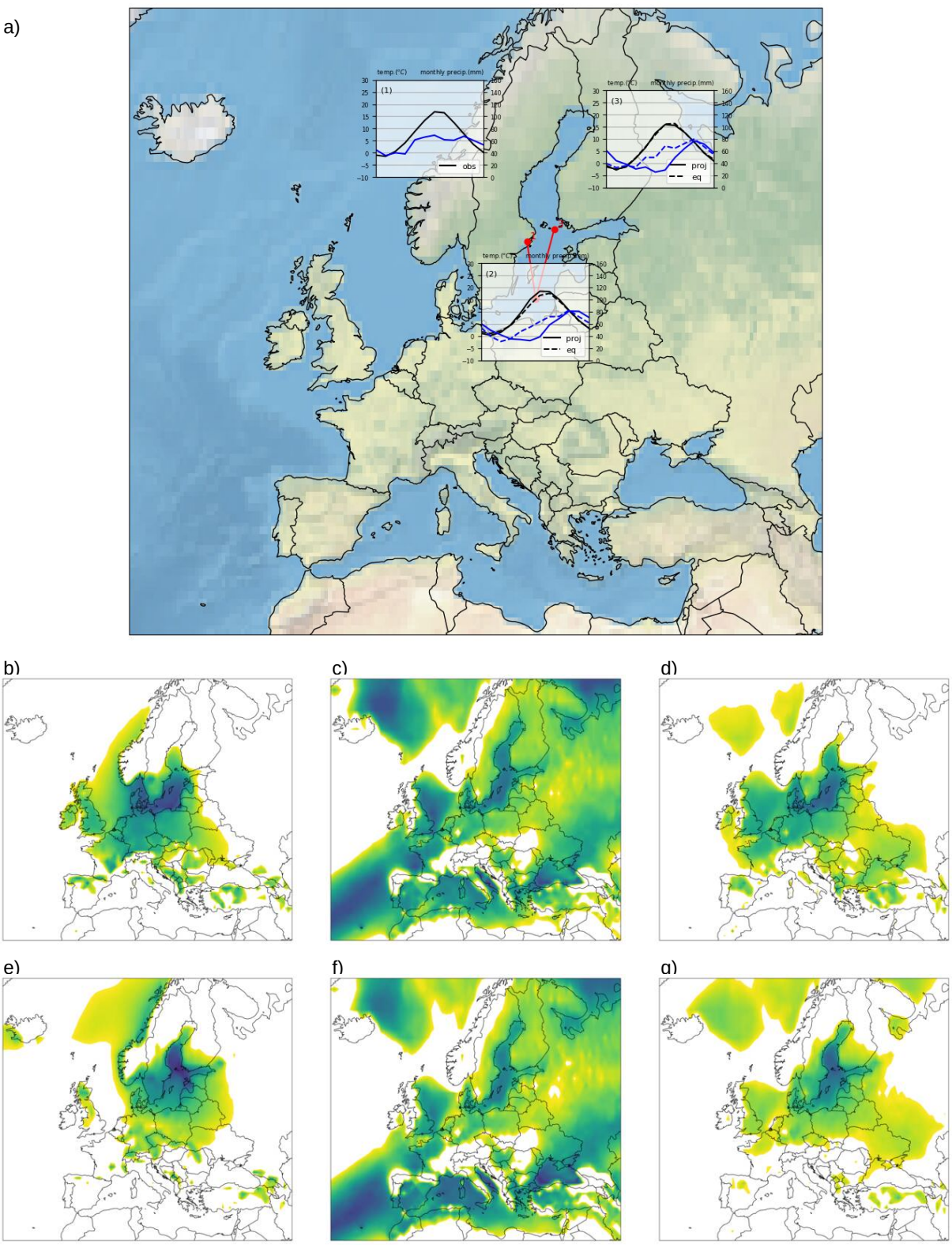

Figure S74: Equivalent climate locations for Stockholm for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

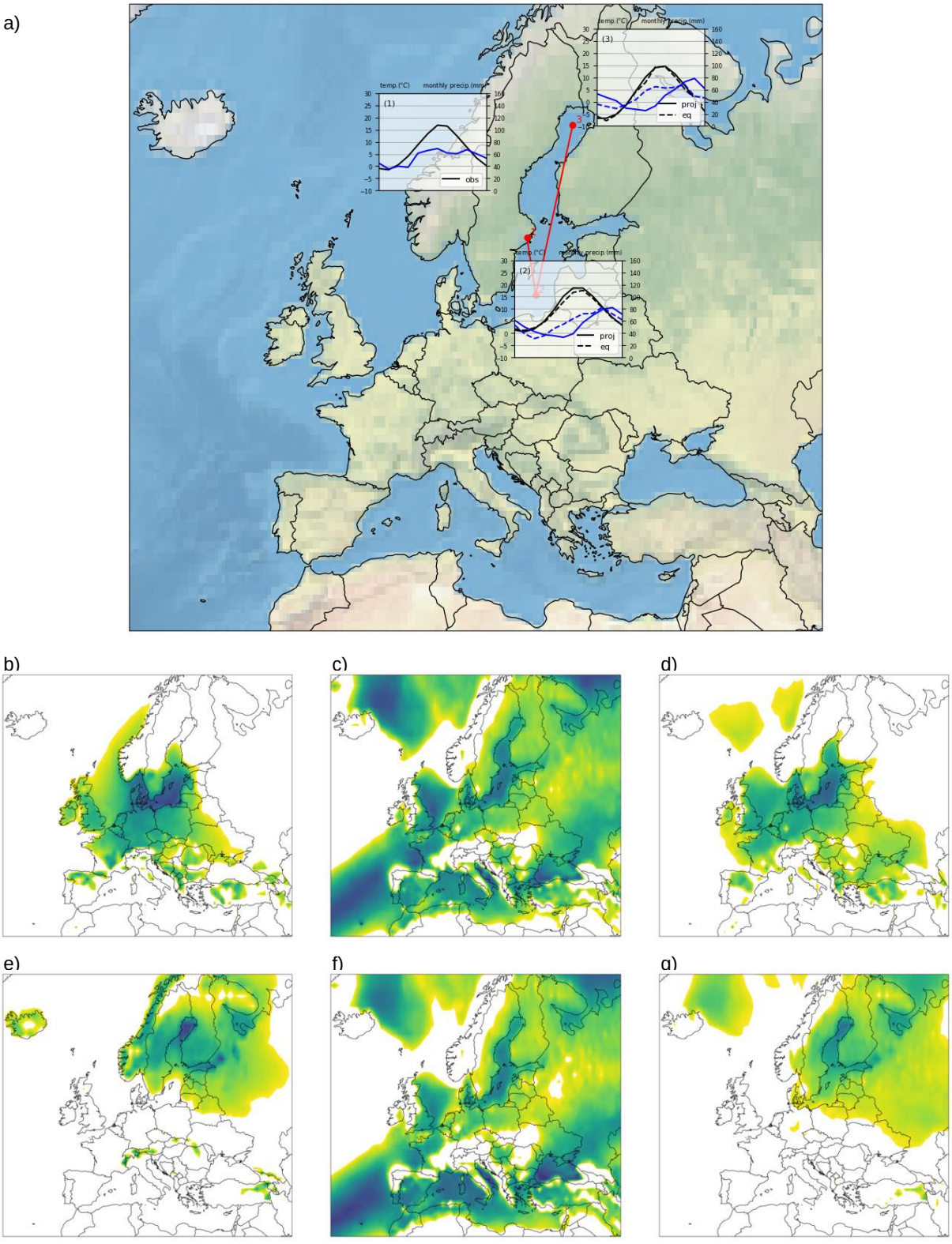

Figure S75: Equivalent climate locations for Stockholm for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

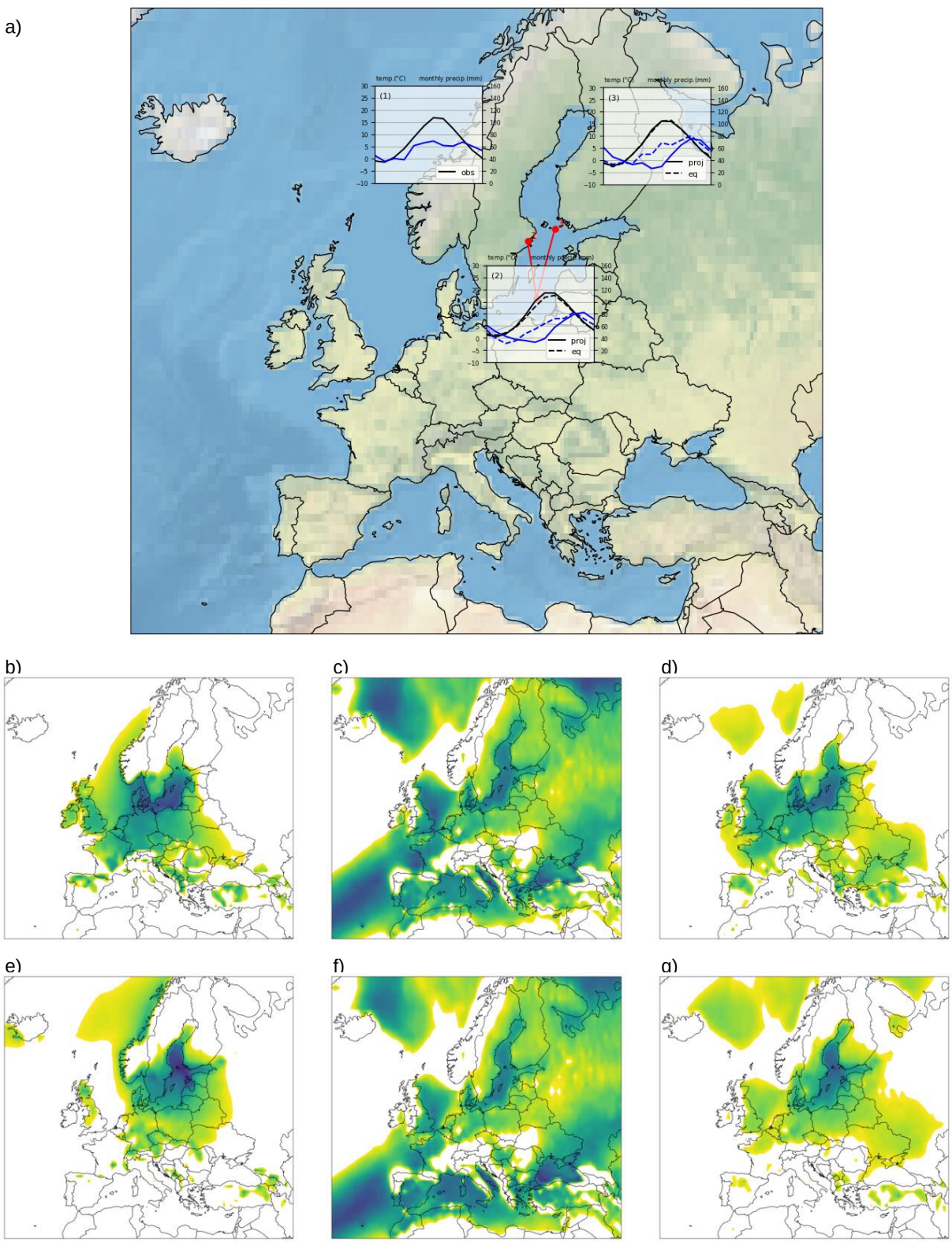

Figure S76: Equivalent climate locations for Stockholm for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

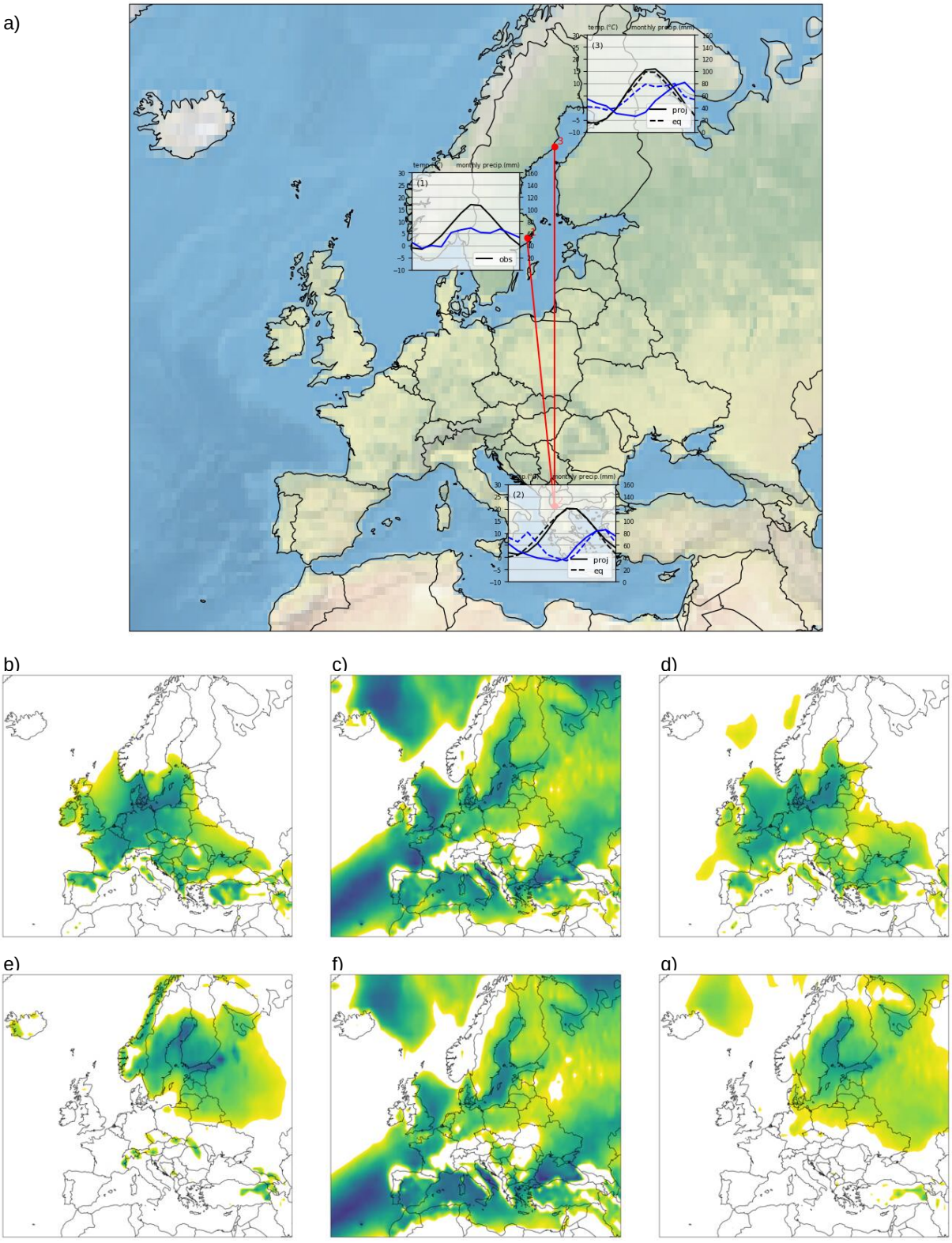

Figure S77: Equivalent climate locations for Stockholm for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

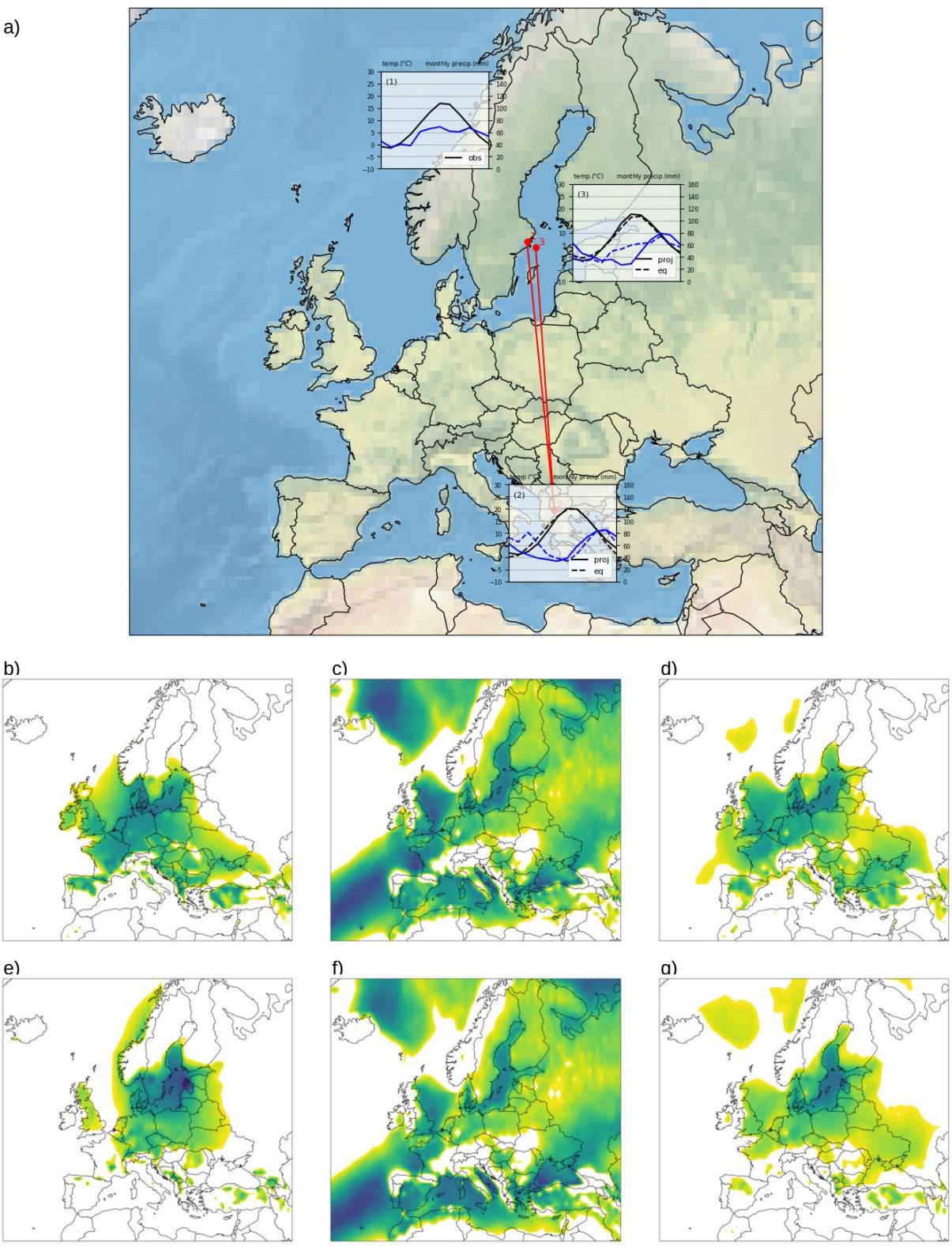

Figure S78: Equivalent climate locations for Stockholm for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

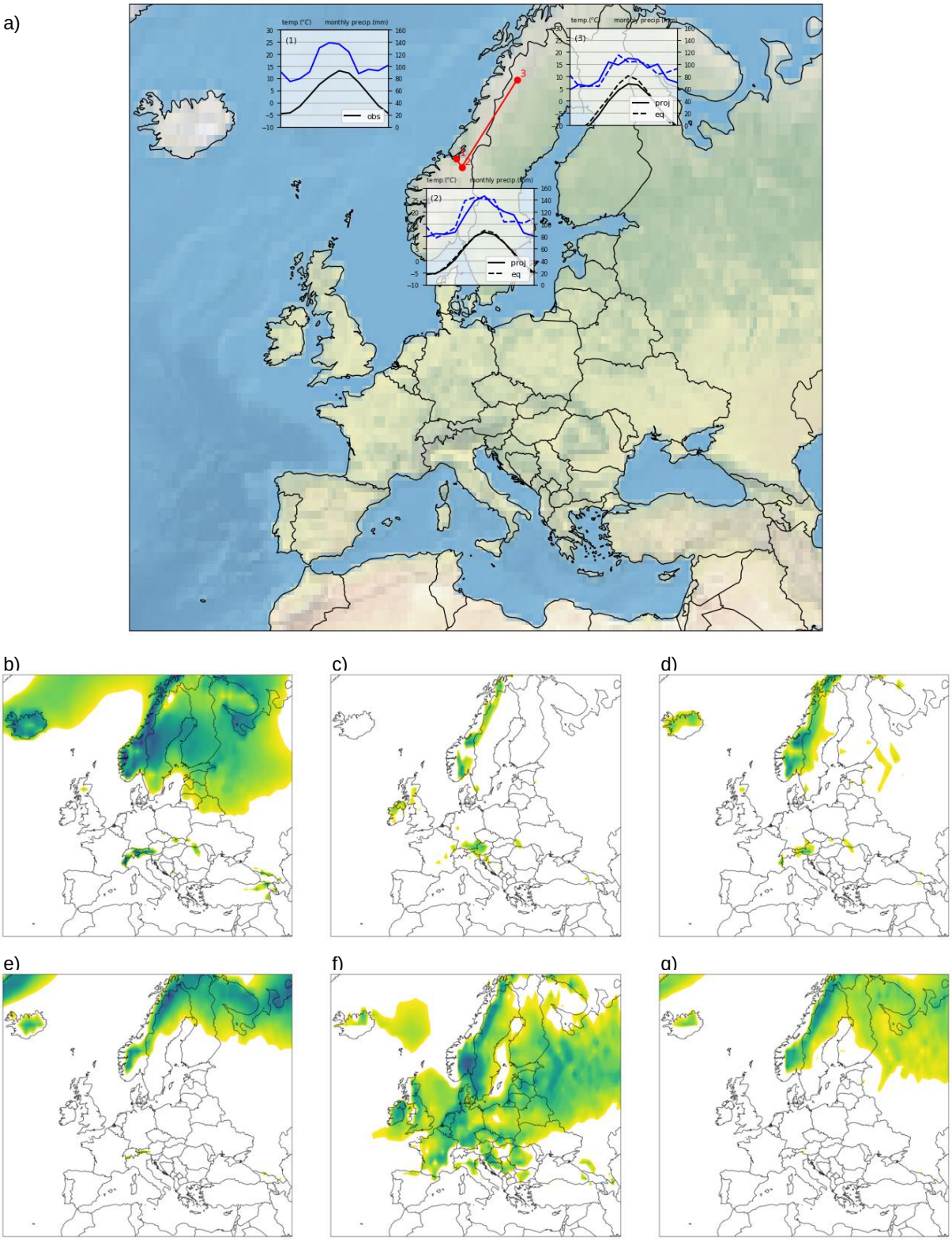

Figure S79: Equivalent climate locations for Trondheim for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

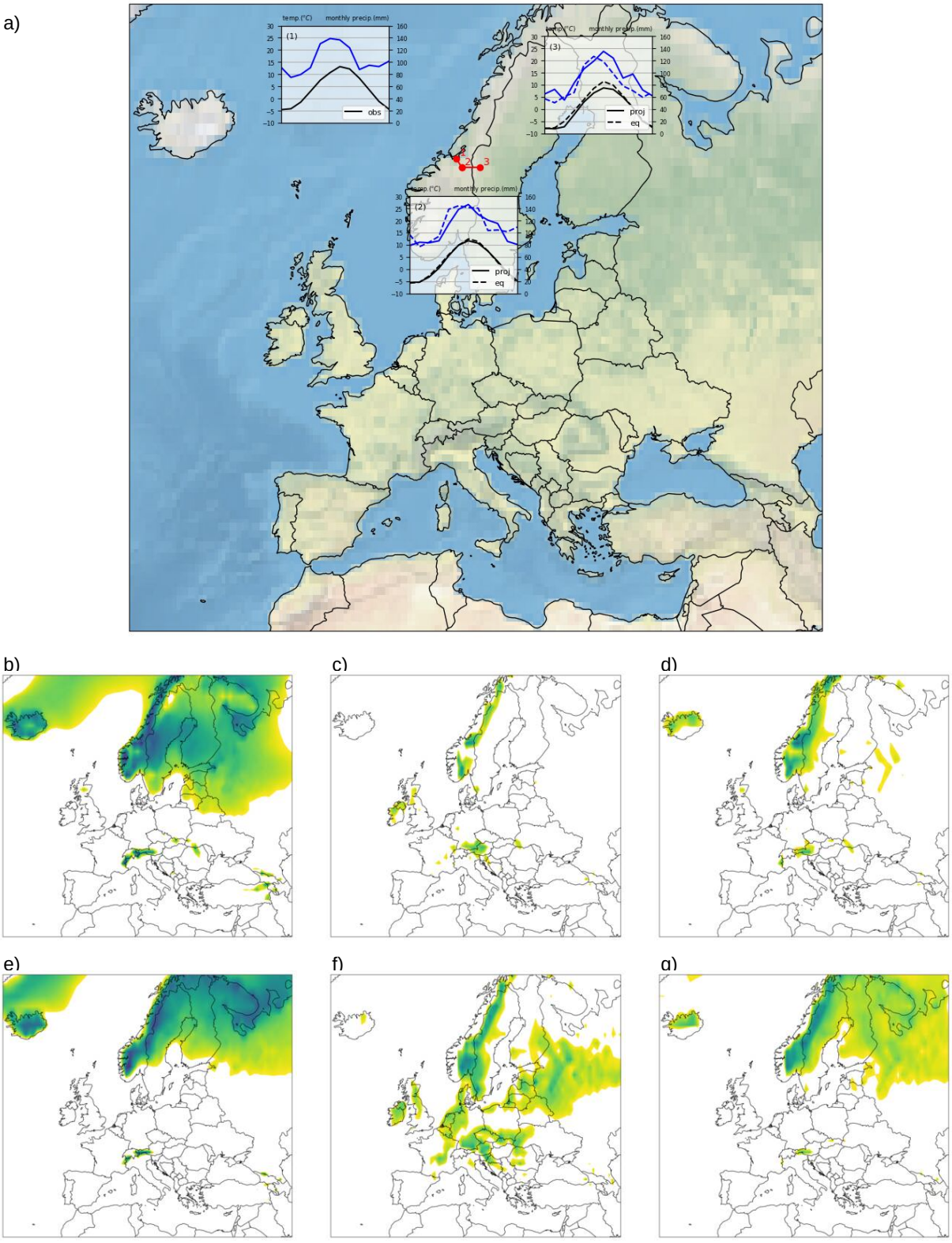

Figure S80: Equivalent climate locations for Trondheim for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

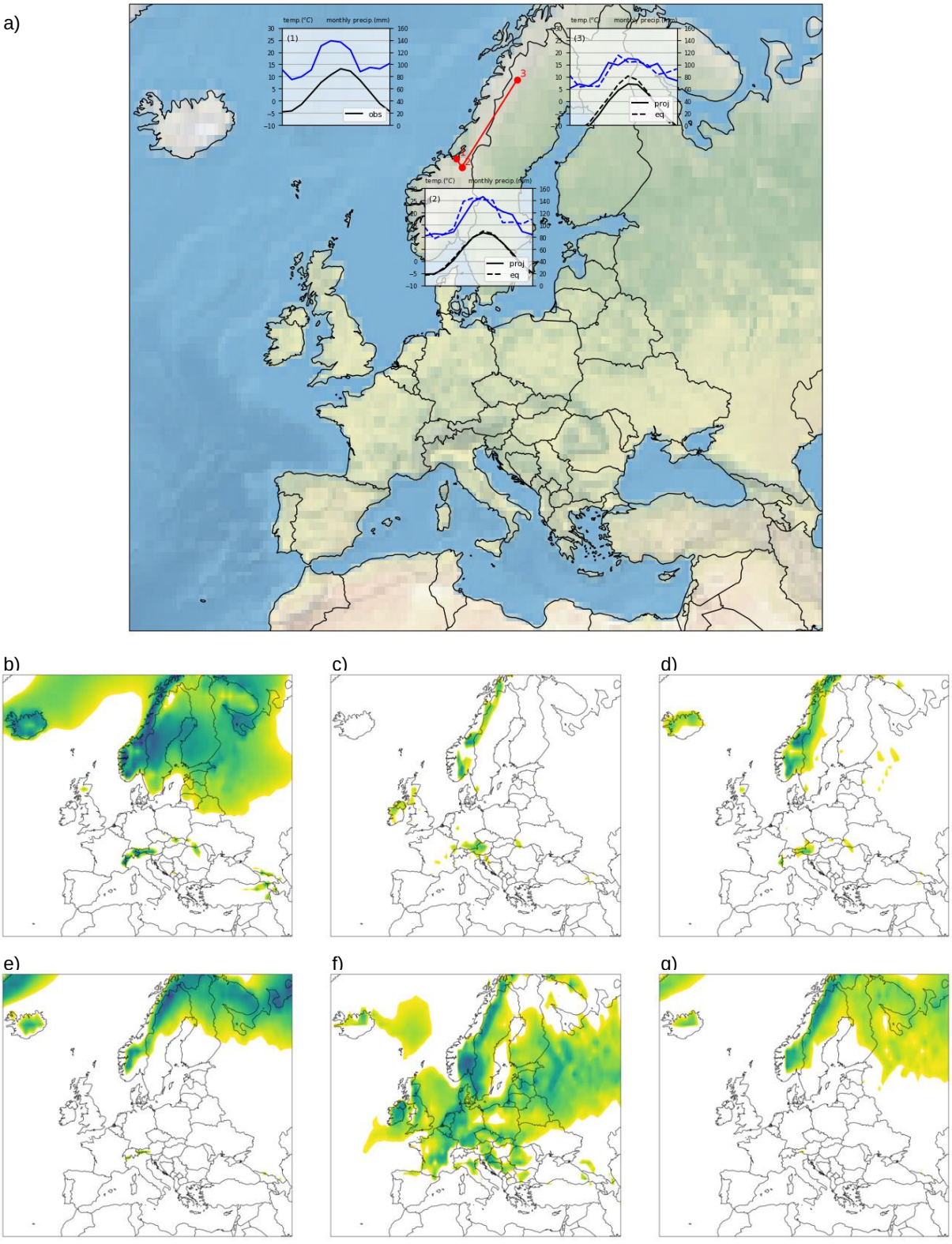

Figure S81: Equivalent climate locations for Trondheim for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

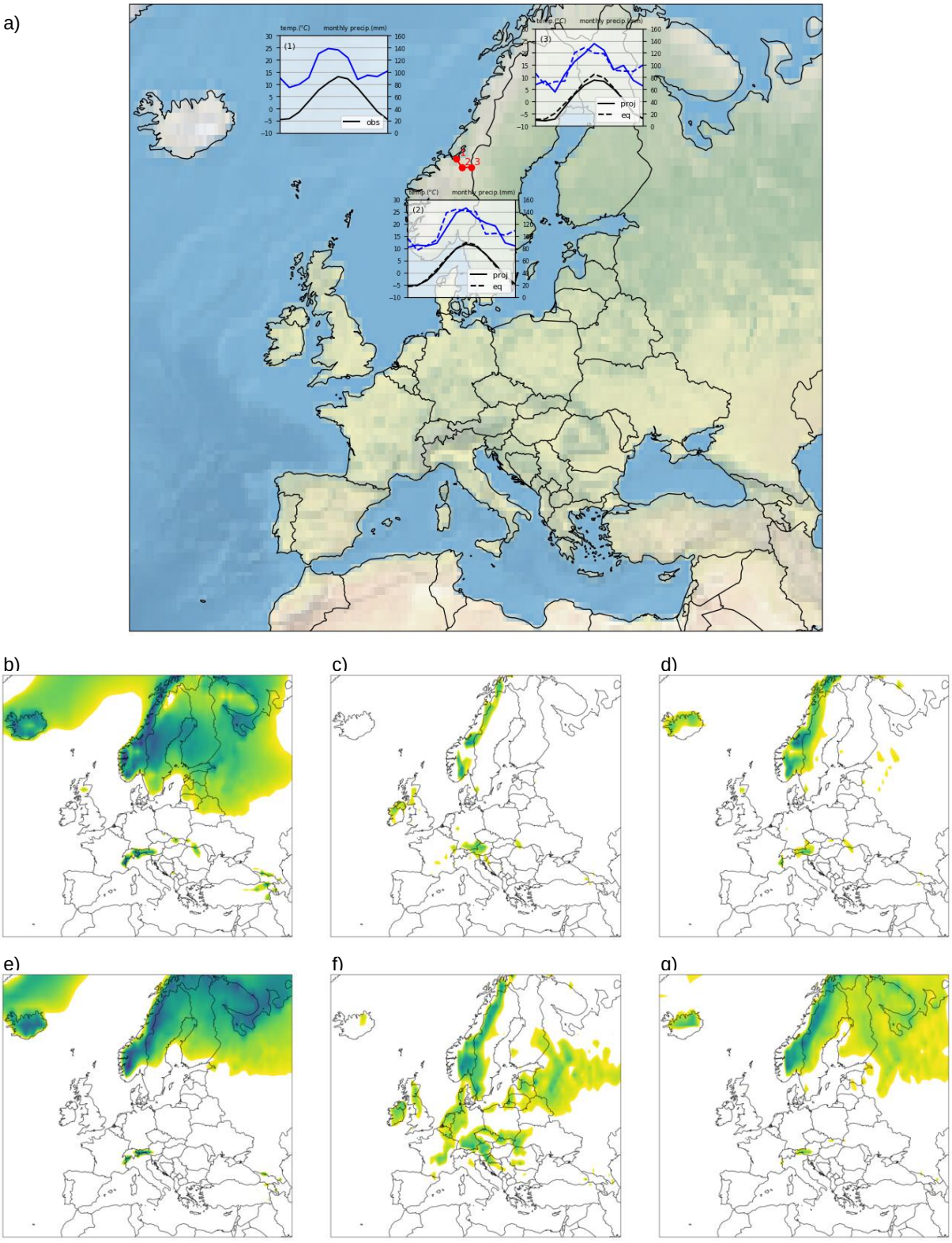

Figure S82: Equivalent climate locations for Trondheim for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

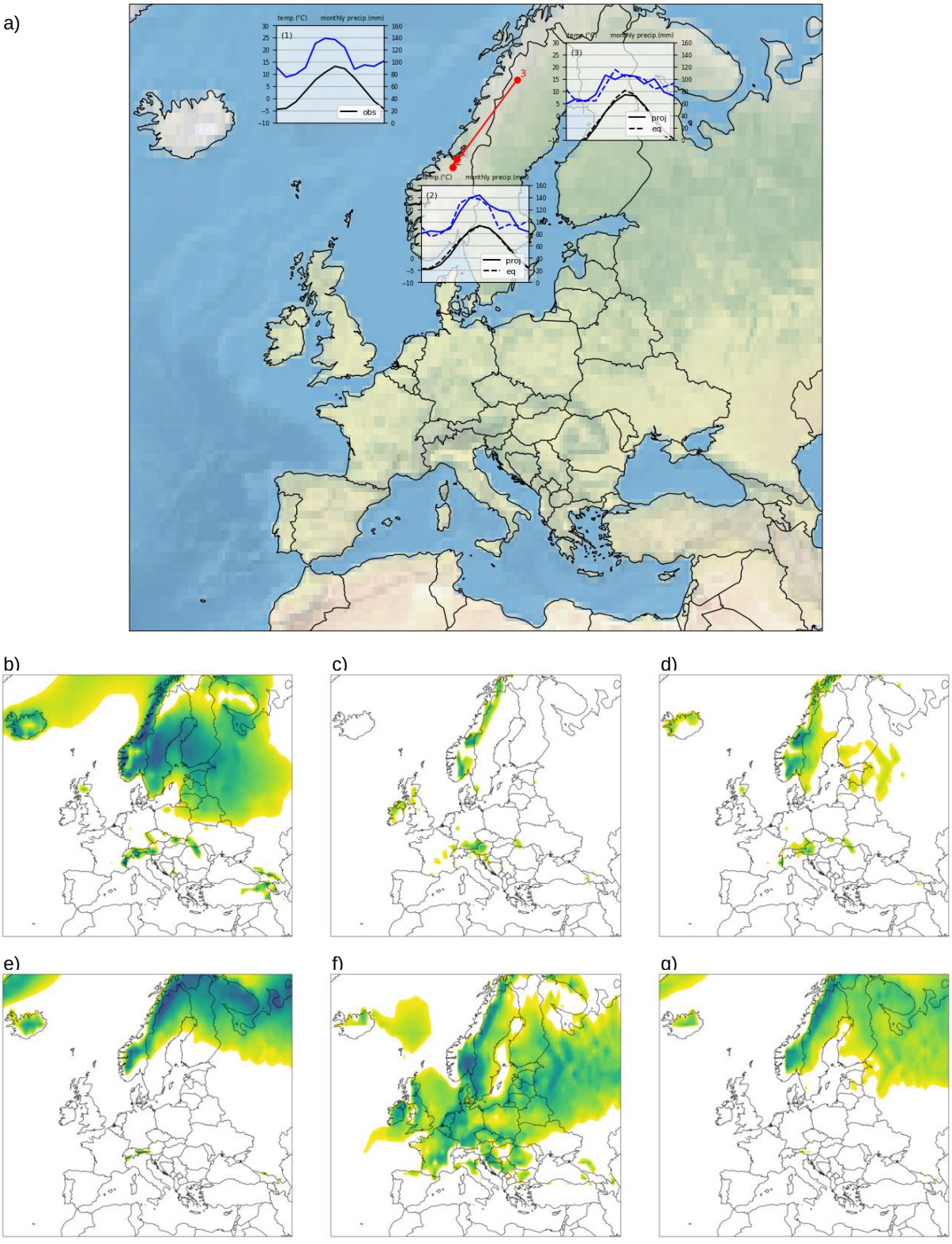

Figure S83: Equivalent climate locations for Trondheim for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

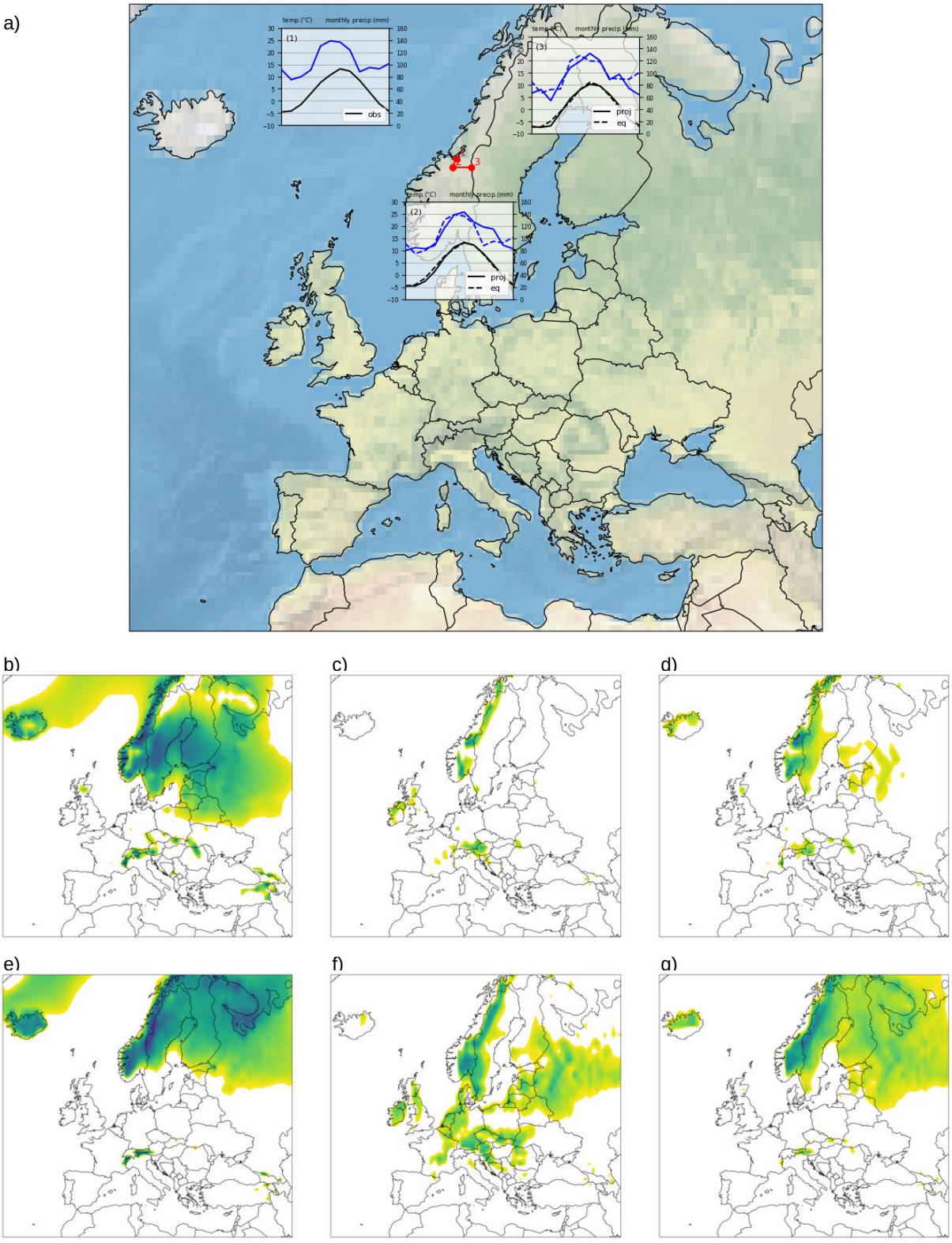

Figure S84: Equivalent climate locations for Trondheim for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

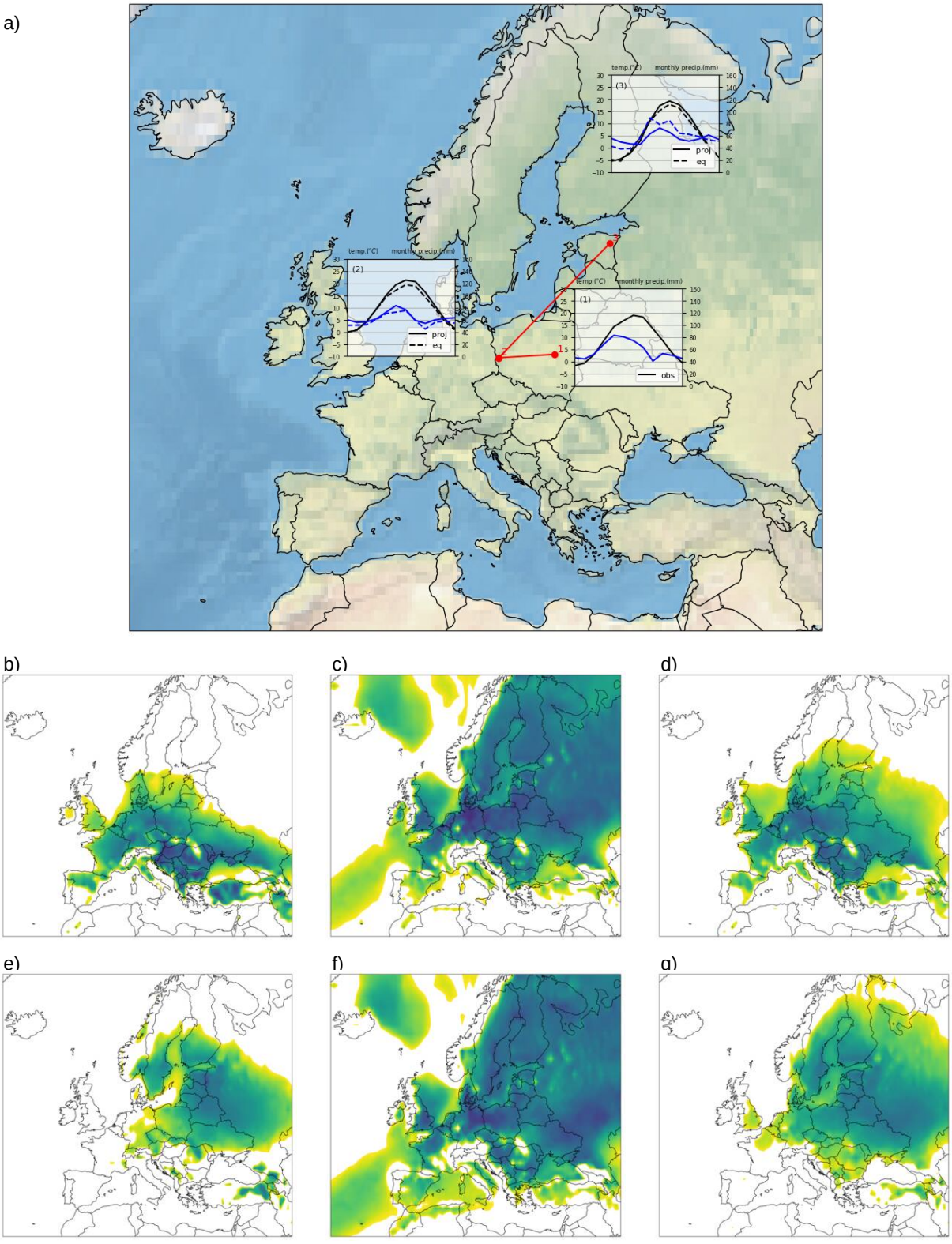

Figure S85: Equivalent climate locations for Warsaw for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

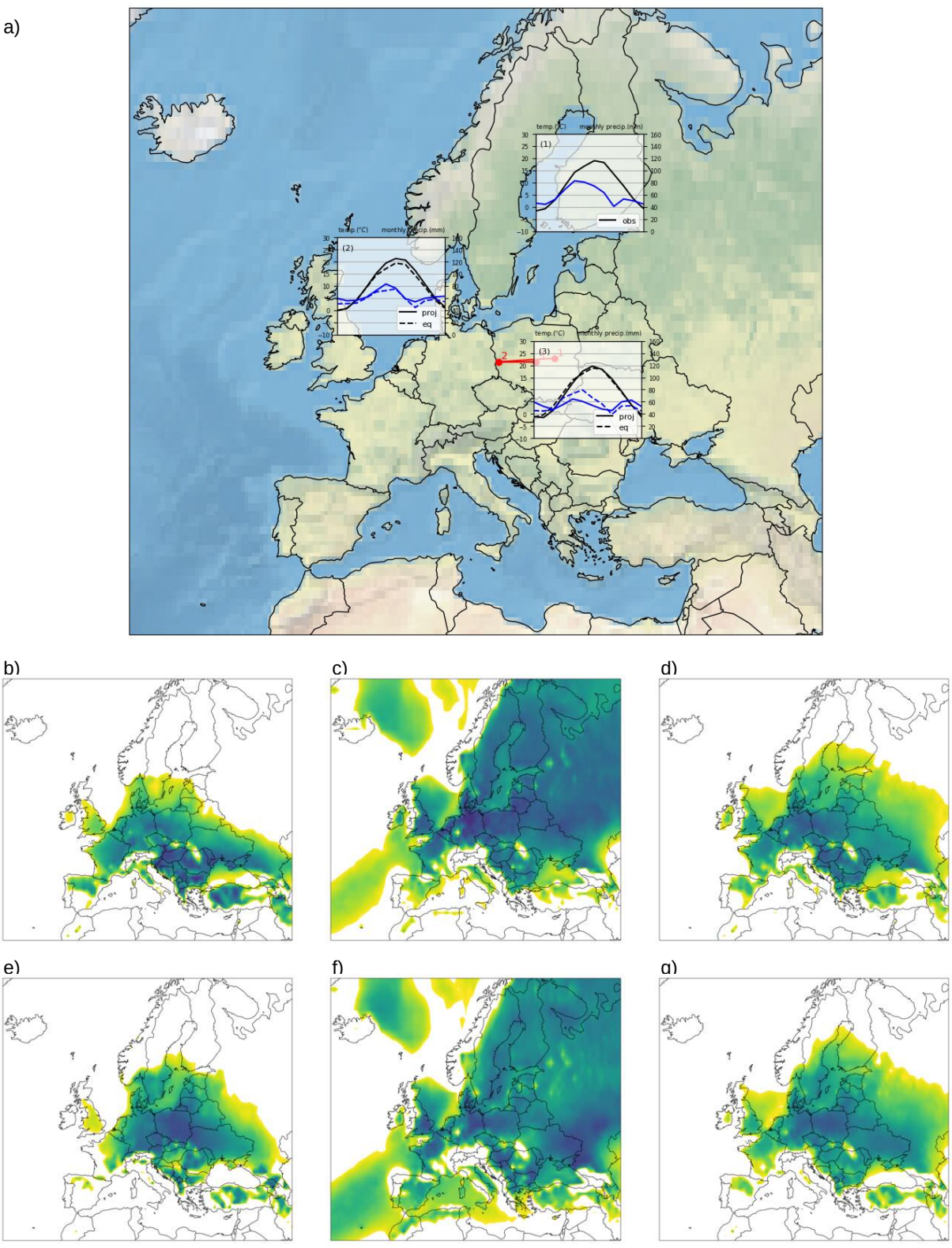

Figure S86: Equivalent climate locations for Warsaw for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

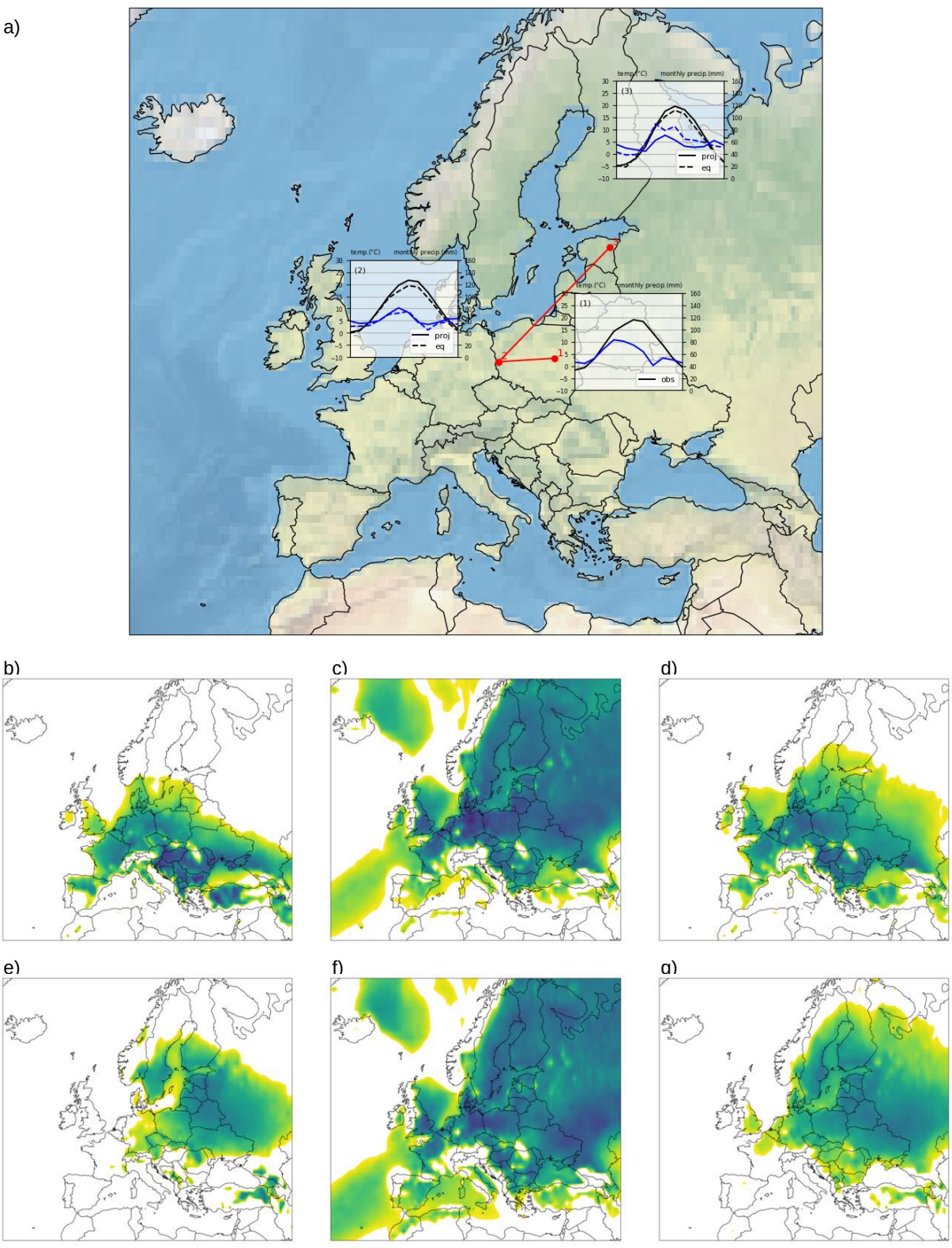

Figure S87: Equivalent climate locations for Warsaw for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

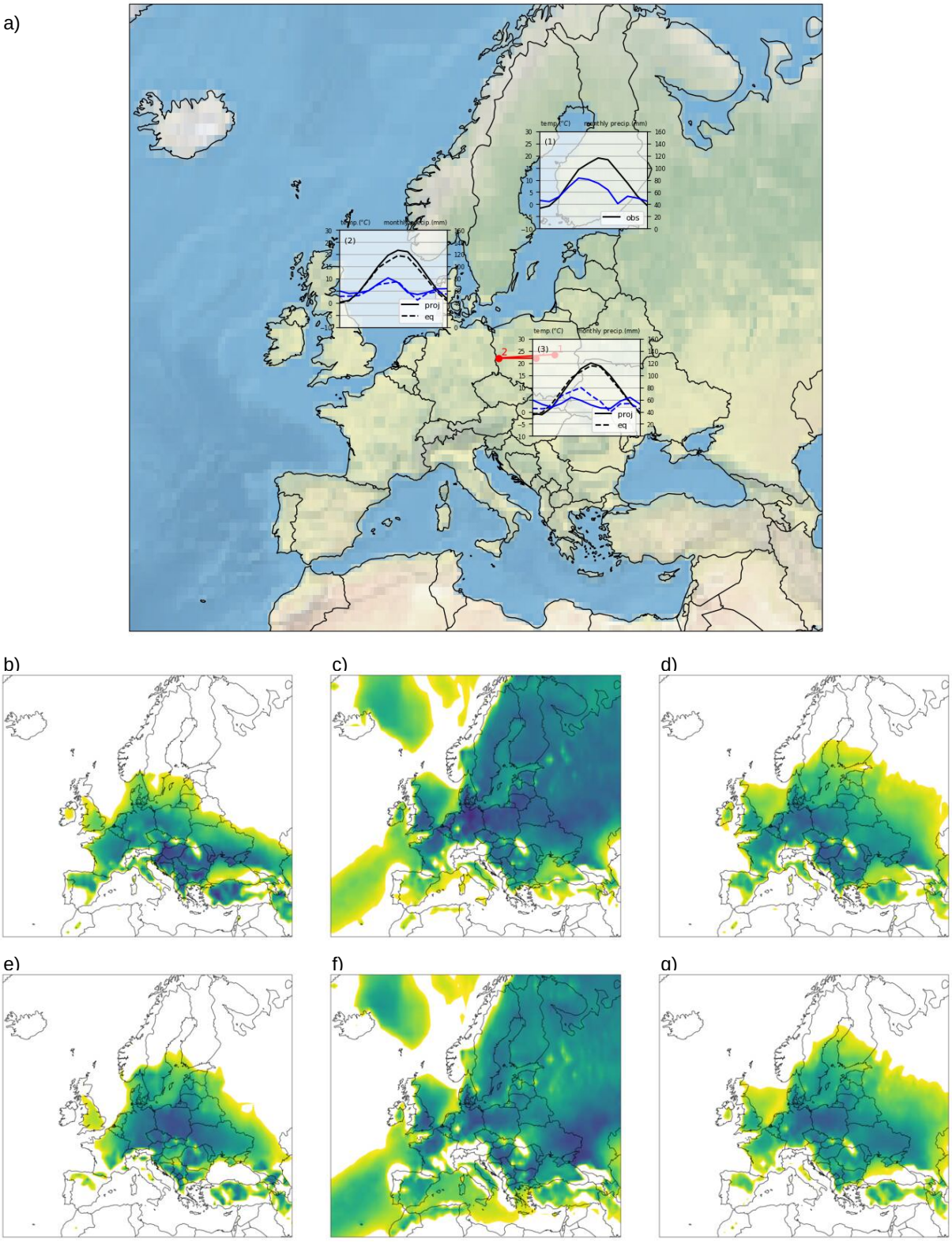

Figure S88: Equivalent climate locations for Warsaw for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

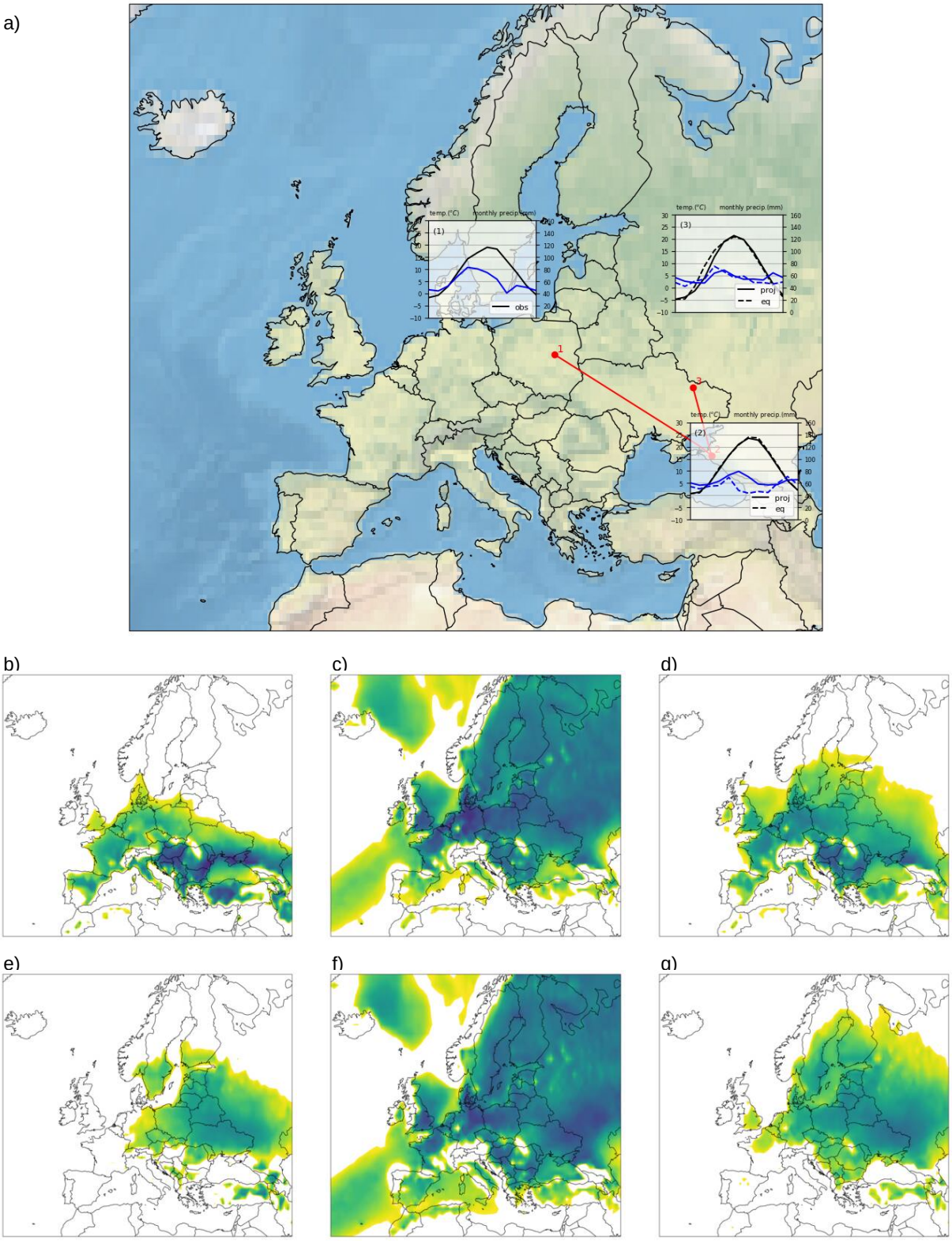

Figure S89: Equivalent climate locations for Warsaw for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

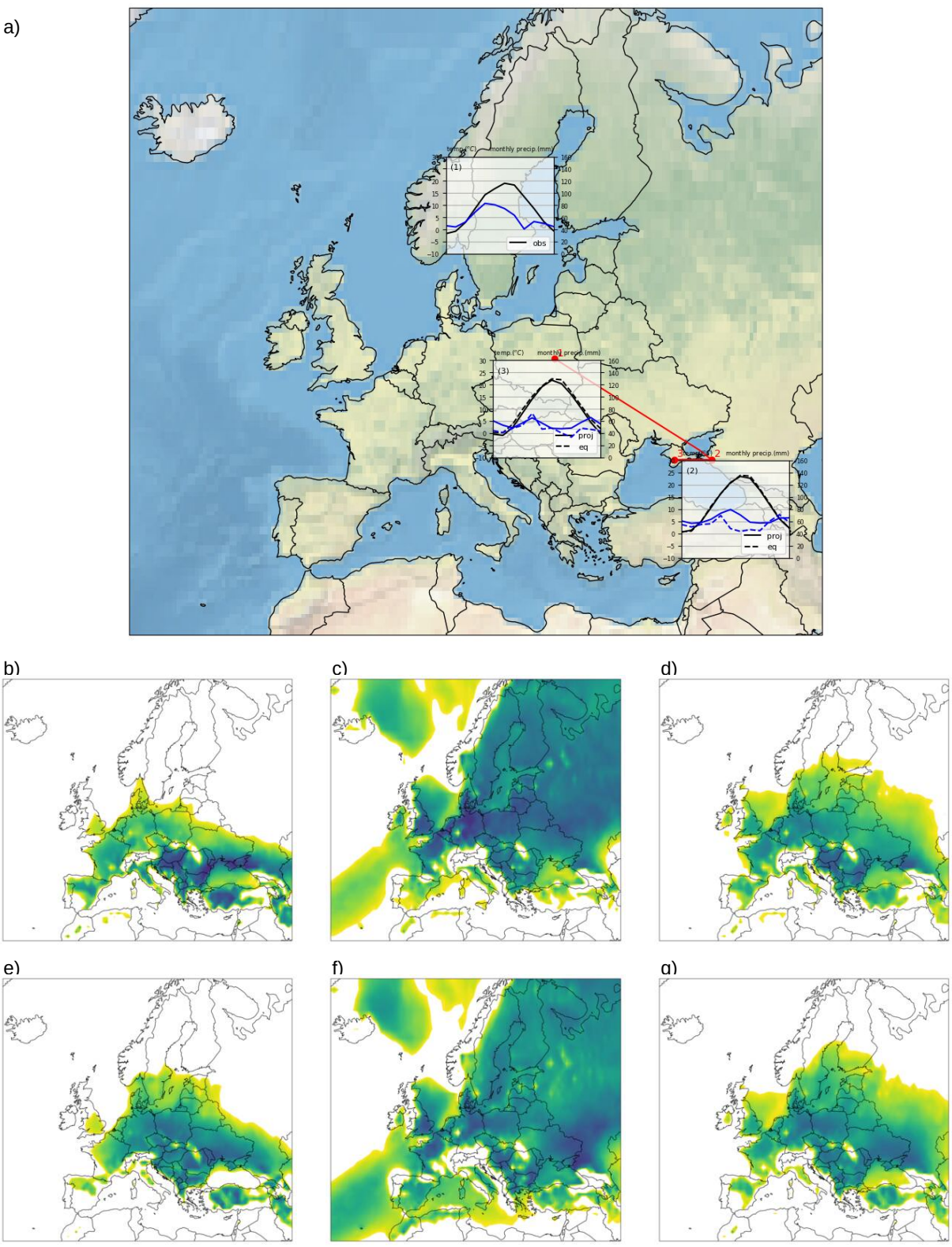

Figure S90: Equivalent climate locations for Warsaw for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

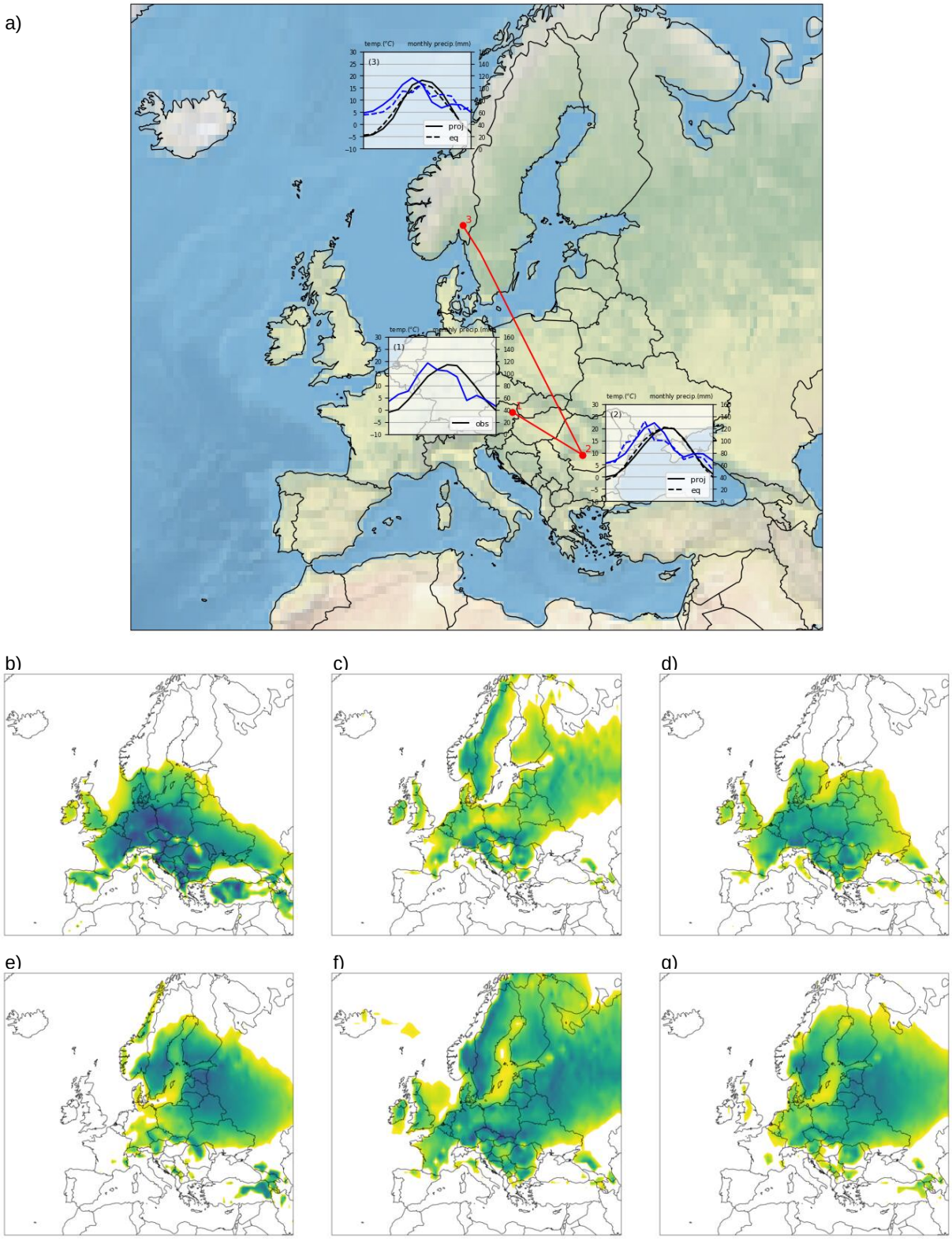

Figure S91: Equivalent climate locations for Vienna for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

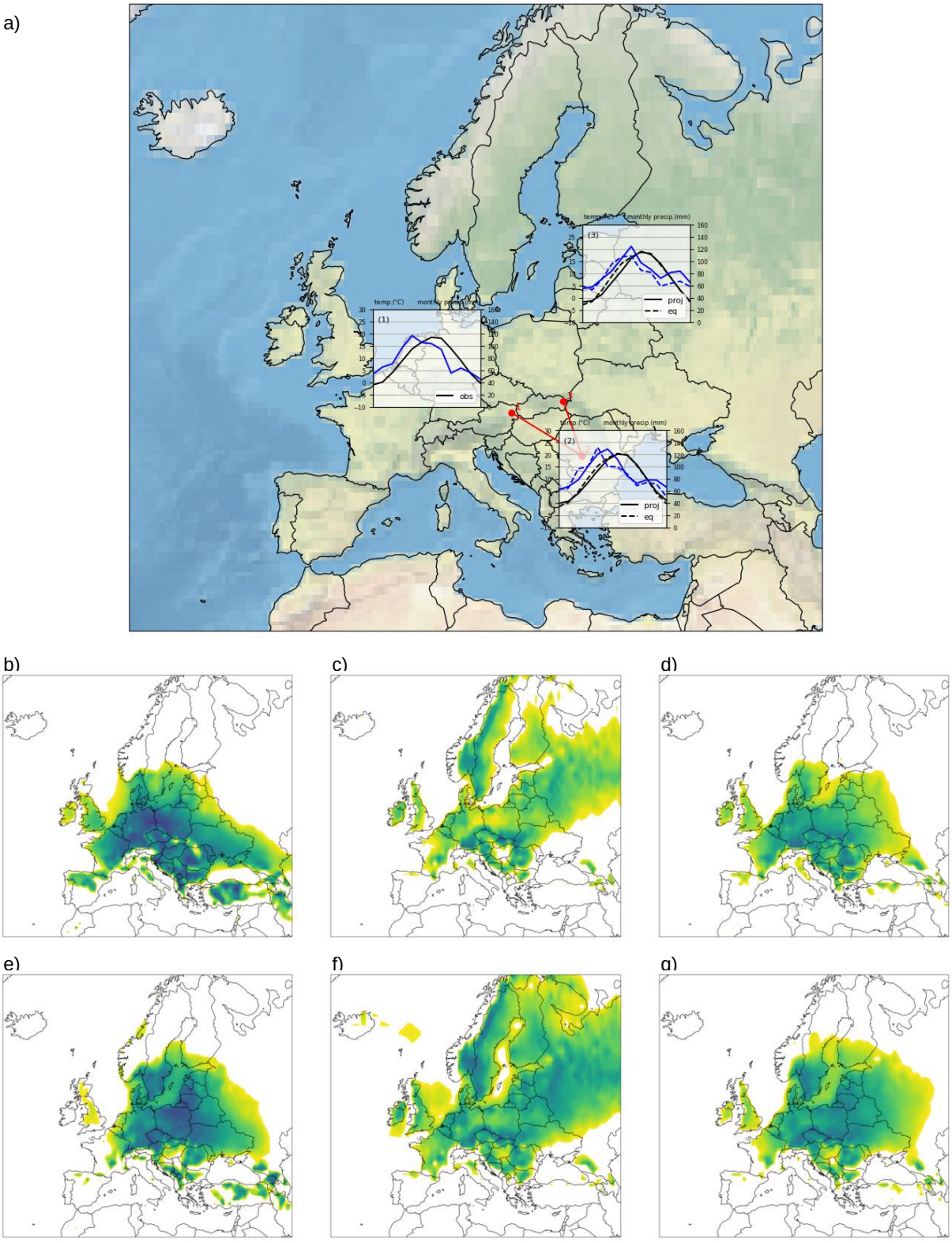

Figure S92: Equivalent climate locations for Vienna for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

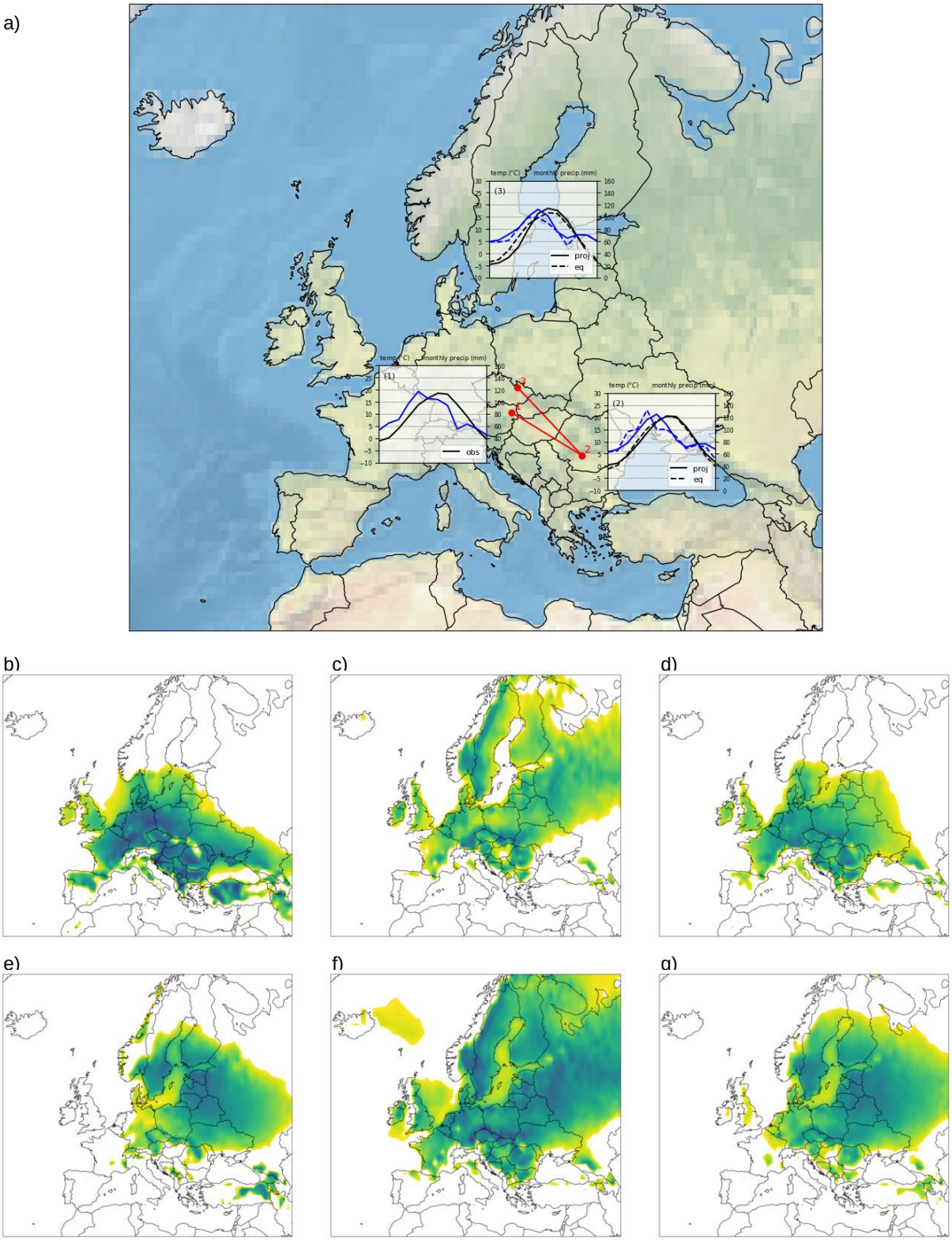

Figure S93: Equivalent climate locations for Vienna for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

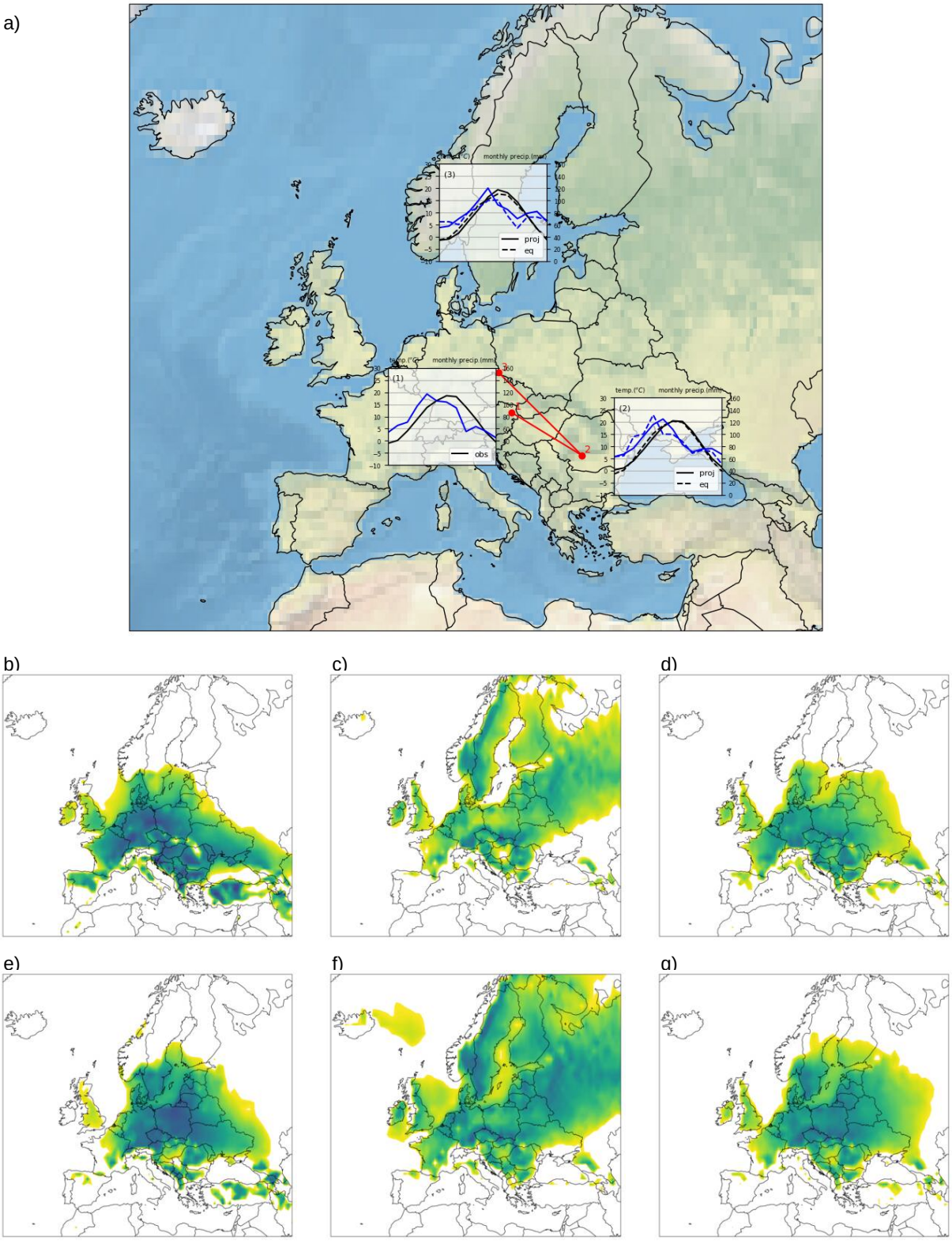

Figure S94: Equivalent climate locations for Vienna for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

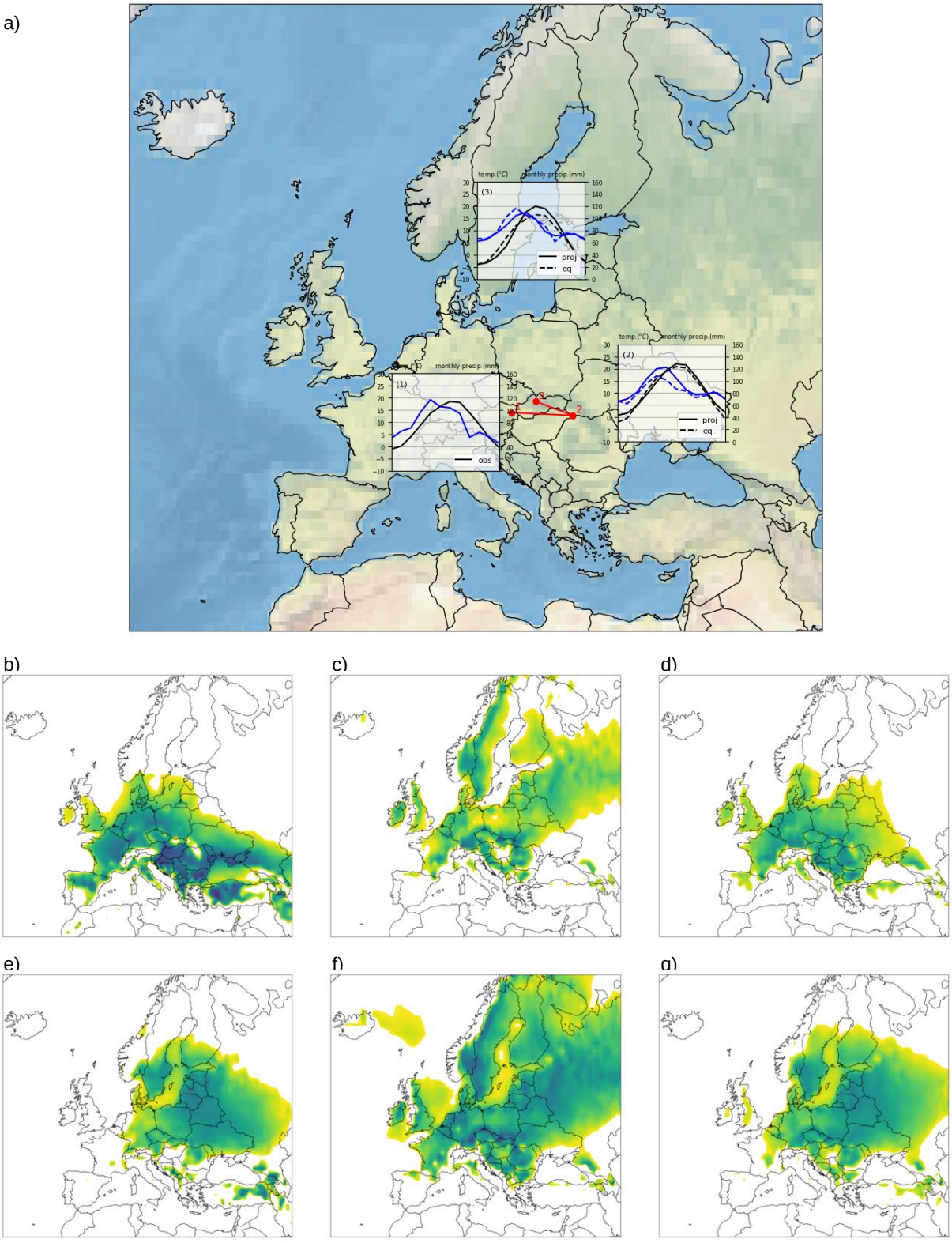

Figure S95: Equivalent climate locations for Vienna for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

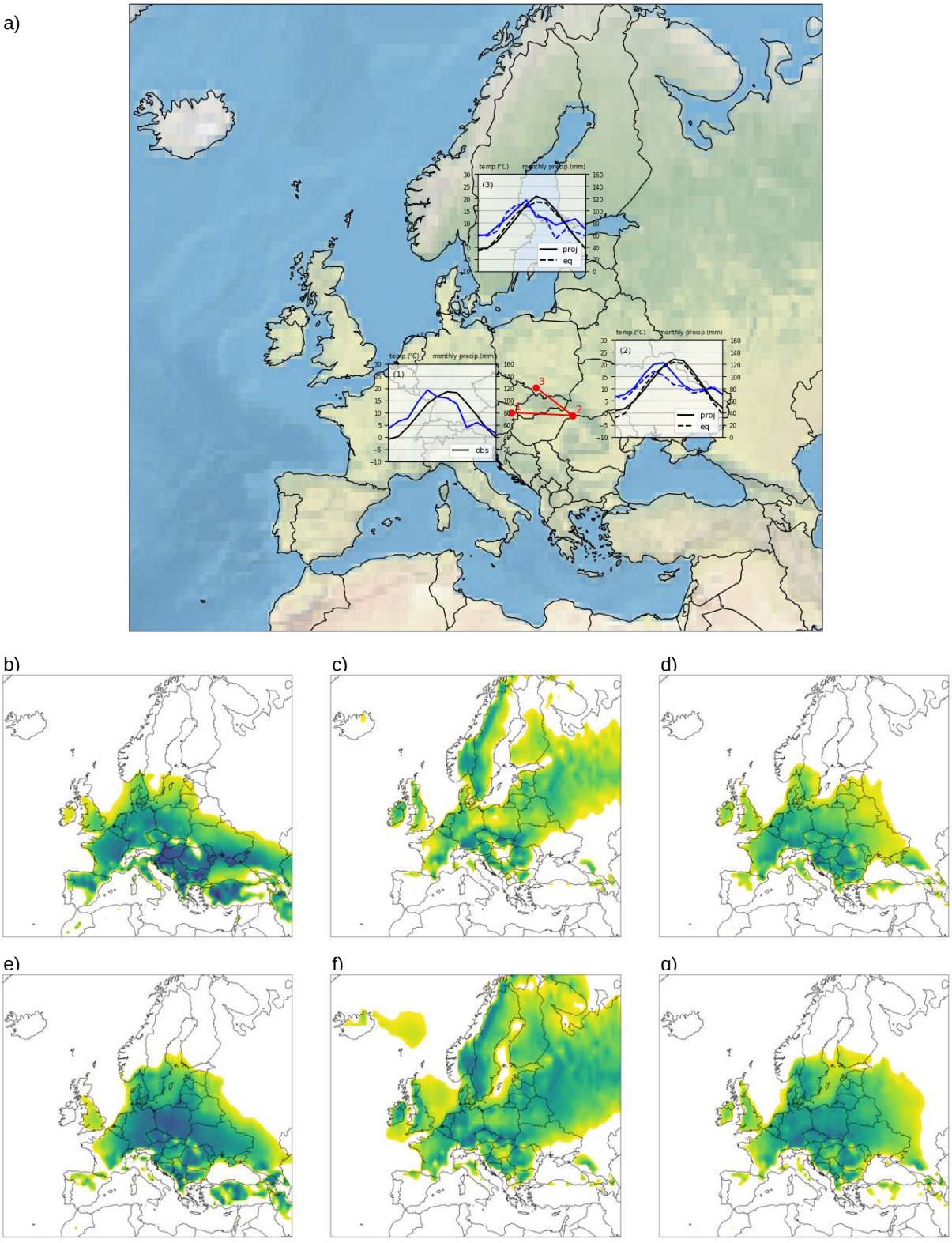

Figure S96: Equivalent climate locations for Vienna for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

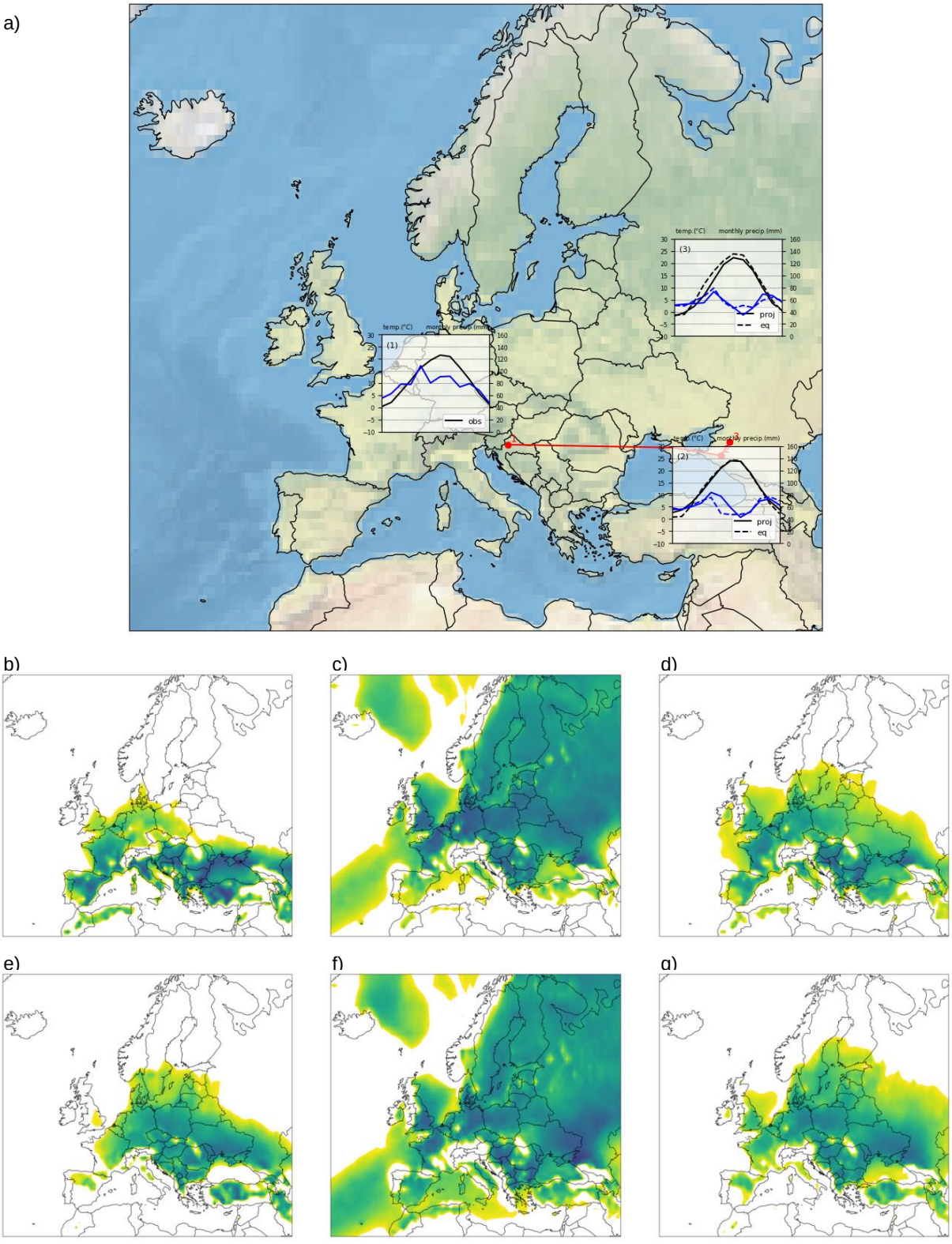

Figure S97: Equivalent climate locations for Zagreb for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

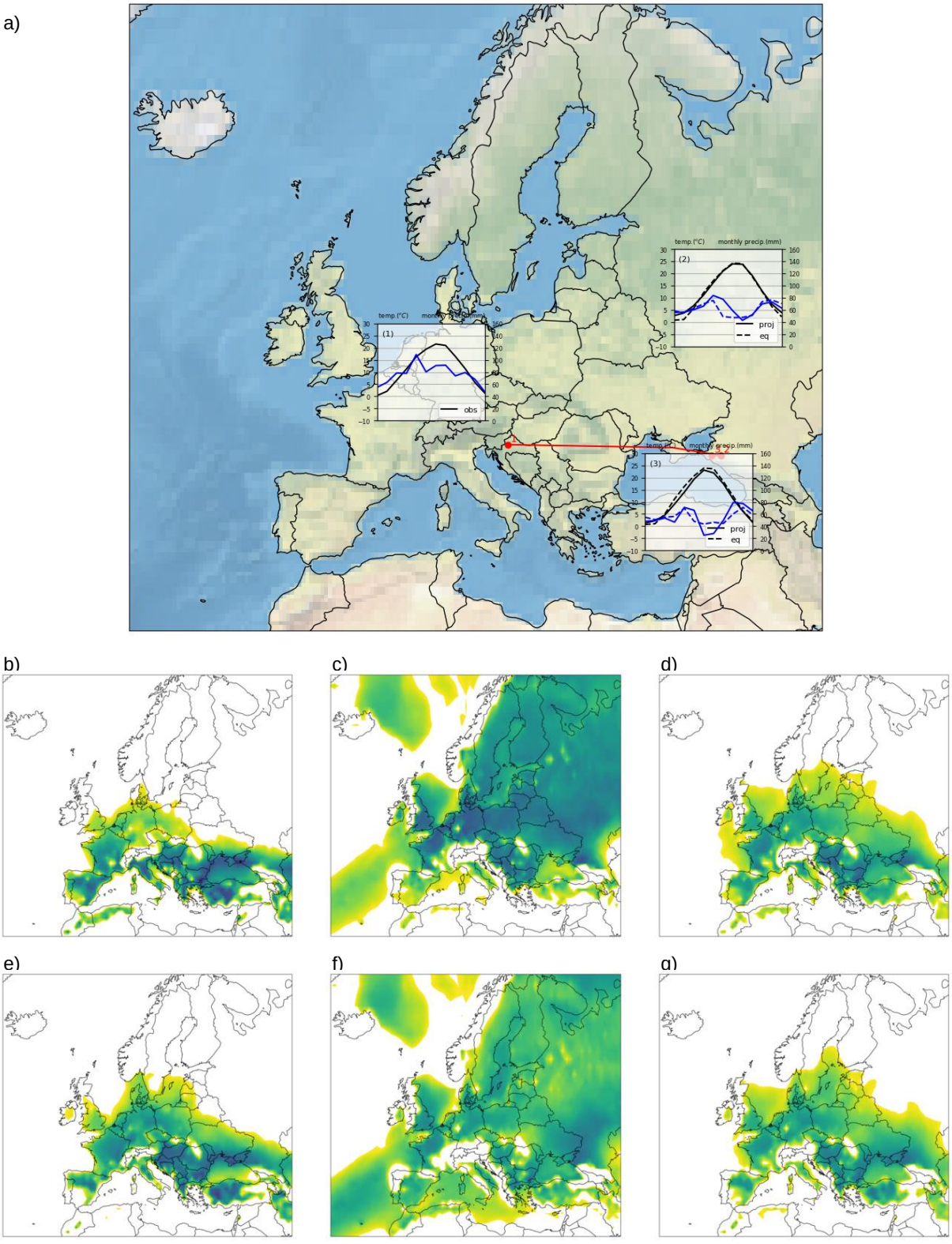

Figure S98: Equivalent climate locations for Zagreb for SSP-126 (step1) and SSP-126+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

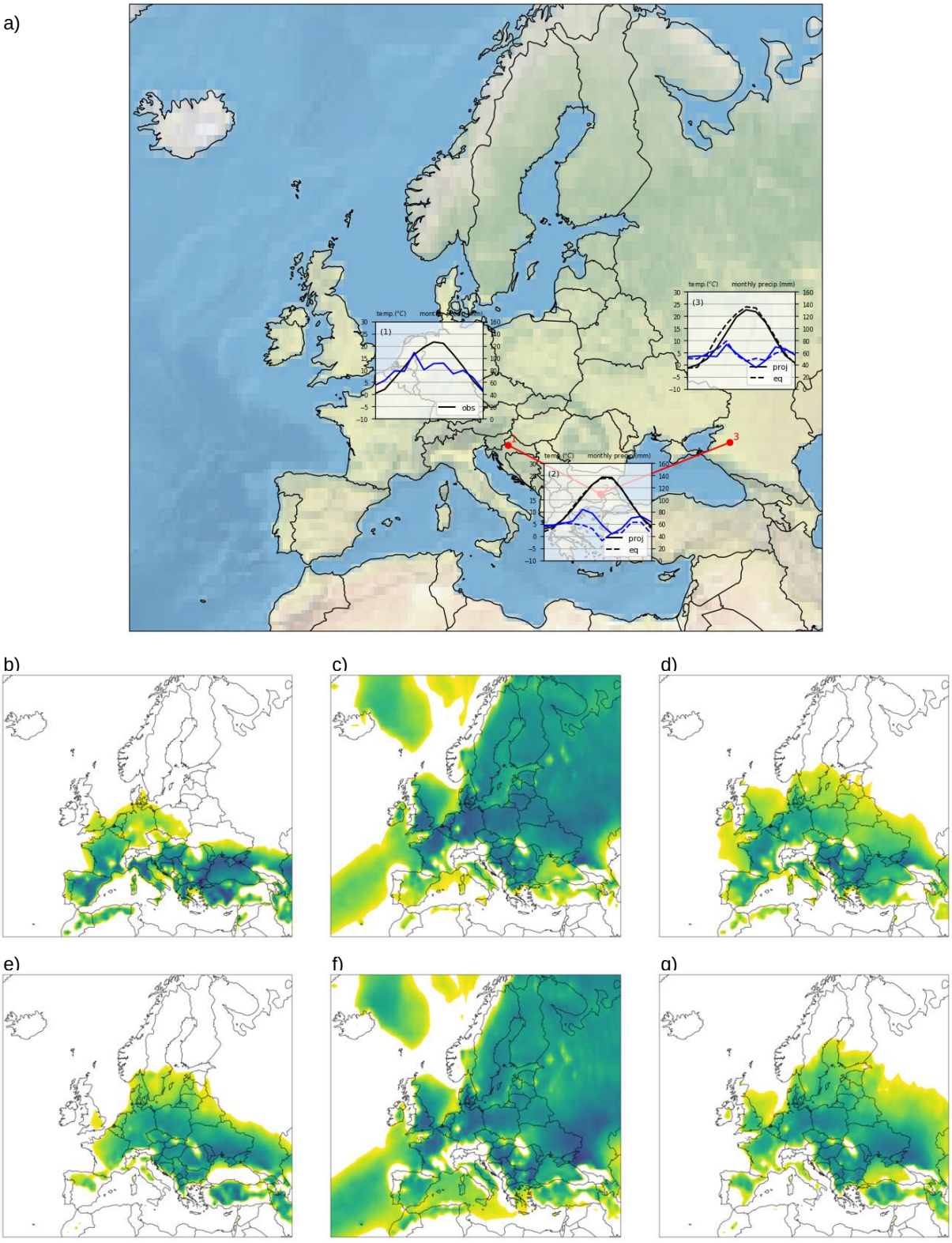

Figure S99: Equivalent climate locations for Zagreb for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

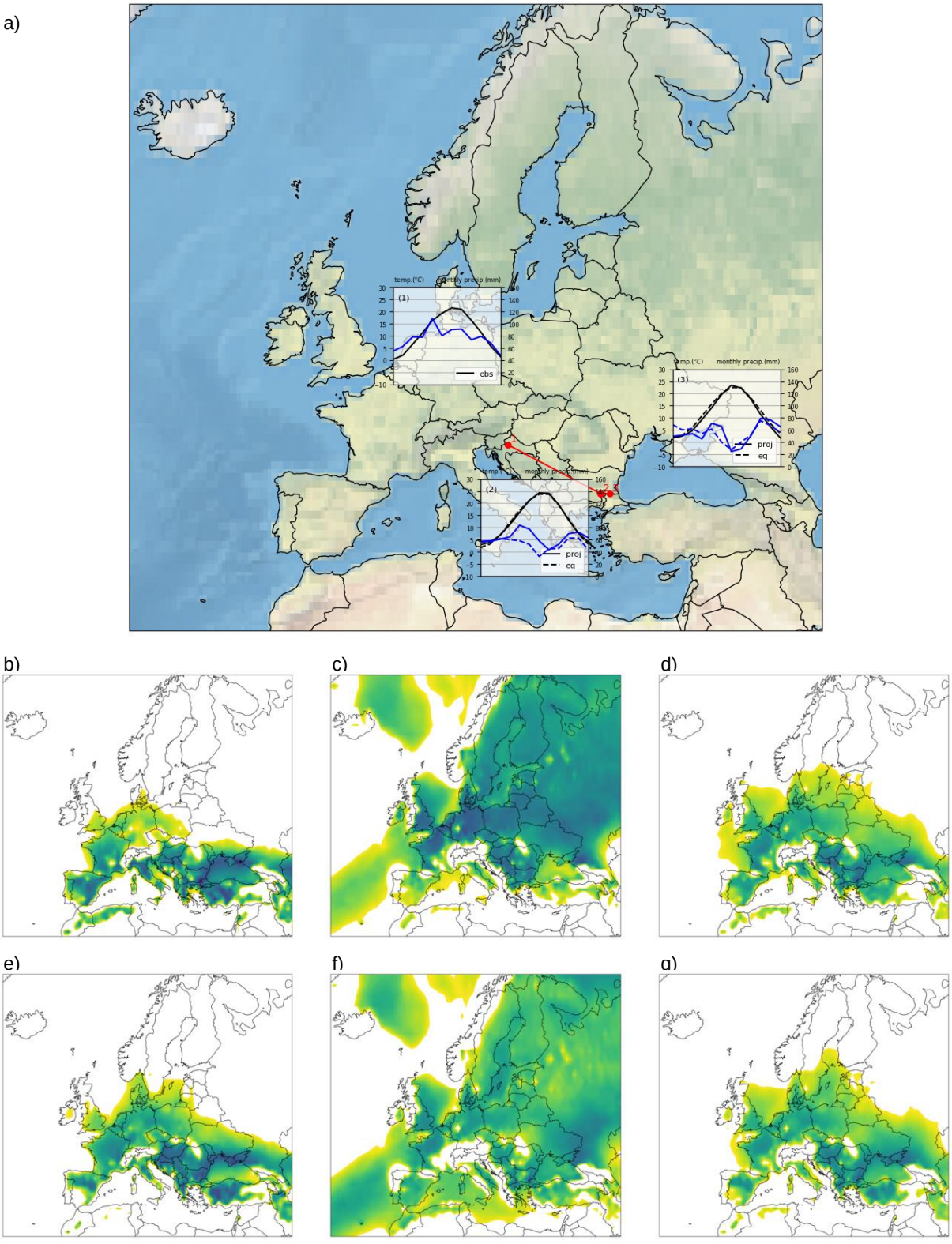

Figure S100: Equivalent climate locations for Zagreb for SSP-245 (step1) and SSP-245+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

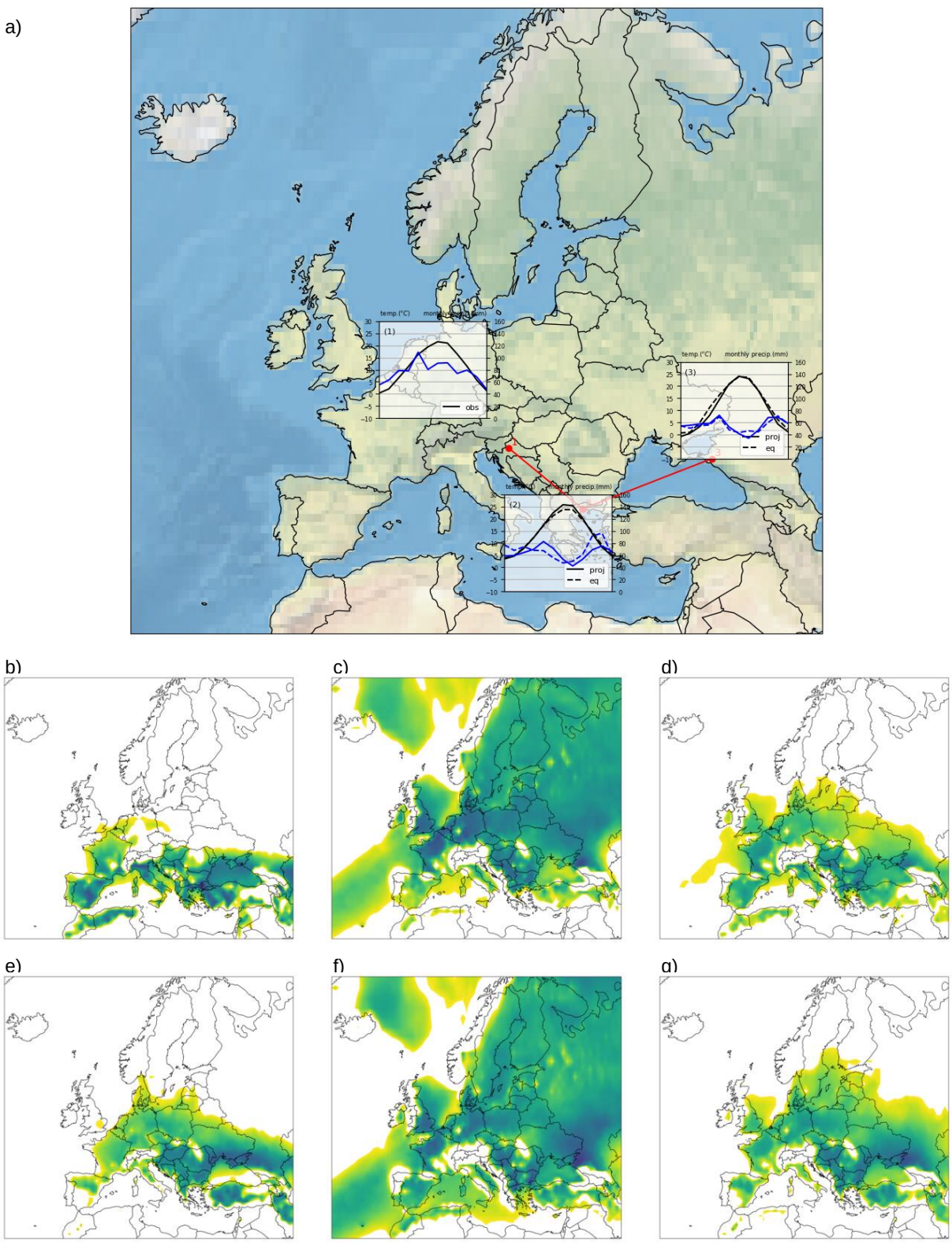

Figure S101: Equivalent climate locations for Zagreb for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the ECEARTH model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).

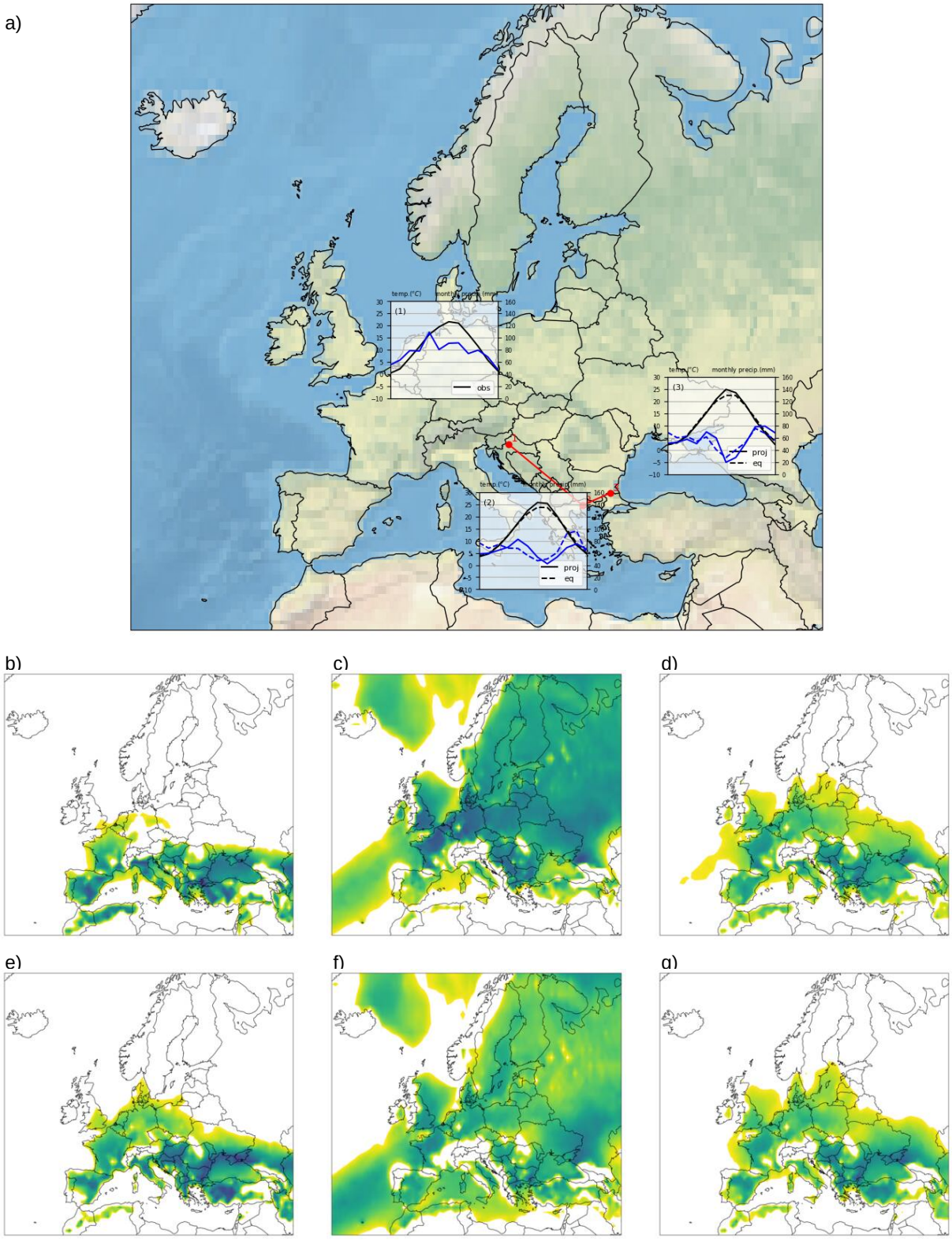

Figure S102: Equivalent climate locations for Zagreb for SSP-585 (step1) and SSP-585+AMOC collapse (step 2) for the HadGEM model. a) Locations with corresponding mean monthly temperature (black) and precipitation (blue) curves; obs: observations, proj: projections, eq: observations for equivalent location; b) normalized L2 norm of temperature difference vector for step 1; c) normalized L2 norm of precipitation difference vector for step 1; d) summed normalized L2 norms of temperature and precipitation difference vectors for step 1; e) normalized L2 norm of temperature difference vector for step 2; f) normalized L2 norm of precipitation difference vector for step 2; g) summed normalized L2 norms of temperature and precipitation difference vectors for step 2; color scale for b-g runs from blue (0) to yellow (0.2, 0.4 for summed values).