

# Supplementary Material to: Semantic segmentation of glaciological features across multiple remote sensing platforms with the Segment Anything Model (SAM)

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## 1. Image Identifiers

Table S1: Supplementary table of Image ID assessed and their corresponding remote sensing platforms and Fig. IDs.

Image ID	Sensor platform	Fig. ID
20220714_151057_24_227b_3B_AnalyticMS_SR	Planet	4a
S2B_MSIL1C_20190507T142749_N0207_R139_T24WWU_20190507T144439	Sentinel-2	4b
S1B_IW_GRDH_1SDH_20180801T085451_20180801T085516_012067_016381_5C55	Sentinel-1	4c
HEL_DUALCAM2_StarDot1_20220914_210000	CAM-SEC5-B	4d
LM04_L1TP_011010_19830720_20210903_02_T2	Landsat-4	5a
LT05_L2SP_012010_19860727_20200917_02_T1_SR	Landsat-5	5b
LC08_L1TP_014009_20210725_20210803_02_T1	Landsat-8	5c
S2B_MSIL1C_20190507T142749_N0207_R139_T24WWU_20190507T144439	Sentinel-2	6a
S2B_MSIL1C_20190507T142749_N0207_R139_T24WWU_20190507T144439	Sentinel-2	6b
20210817_130152_70_242d_3B_AnalyticMS_SR	Planet	7a
S2B_MSIL1C_20190502T201859_N0207_R071_T22XER_20190502T222835	Sentinel-2	7b
S2B_MSIL1C_20190527T142749_N0207_R139_T24WWU_20190527T145024	Sentinel-2	7c
S2B_MSIL1C_20190525T152819_N0207_R111_T22WEB_20190525T185051	Sentinel-2	7d
S2B_MSIL1C_20200826T141739_N0209_R096_T24WWU_20200826T144937	Sentinel-2	7e

## 2. Images, Annotations, and Prompts

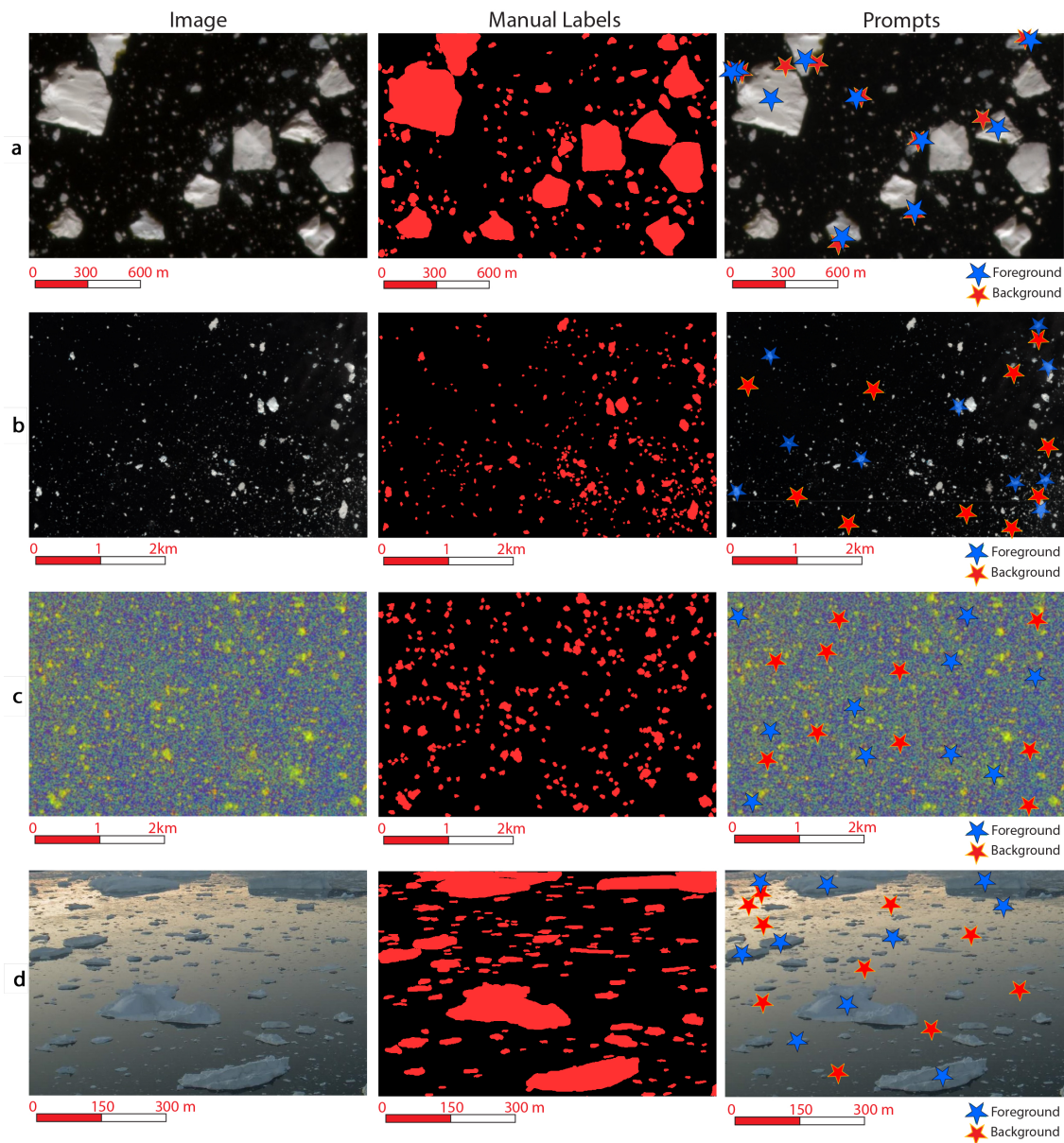


Figure S1: Images with the manual annotations and the corresponding prompts. (a) Planet, (b) Sentinel- 2, (c) Sentinel-1, (d) Timelapse photograph. Manual annotations are shown in the central column. Locations for the foreground (blue stars) and background (red stars) prompts are in the last column.

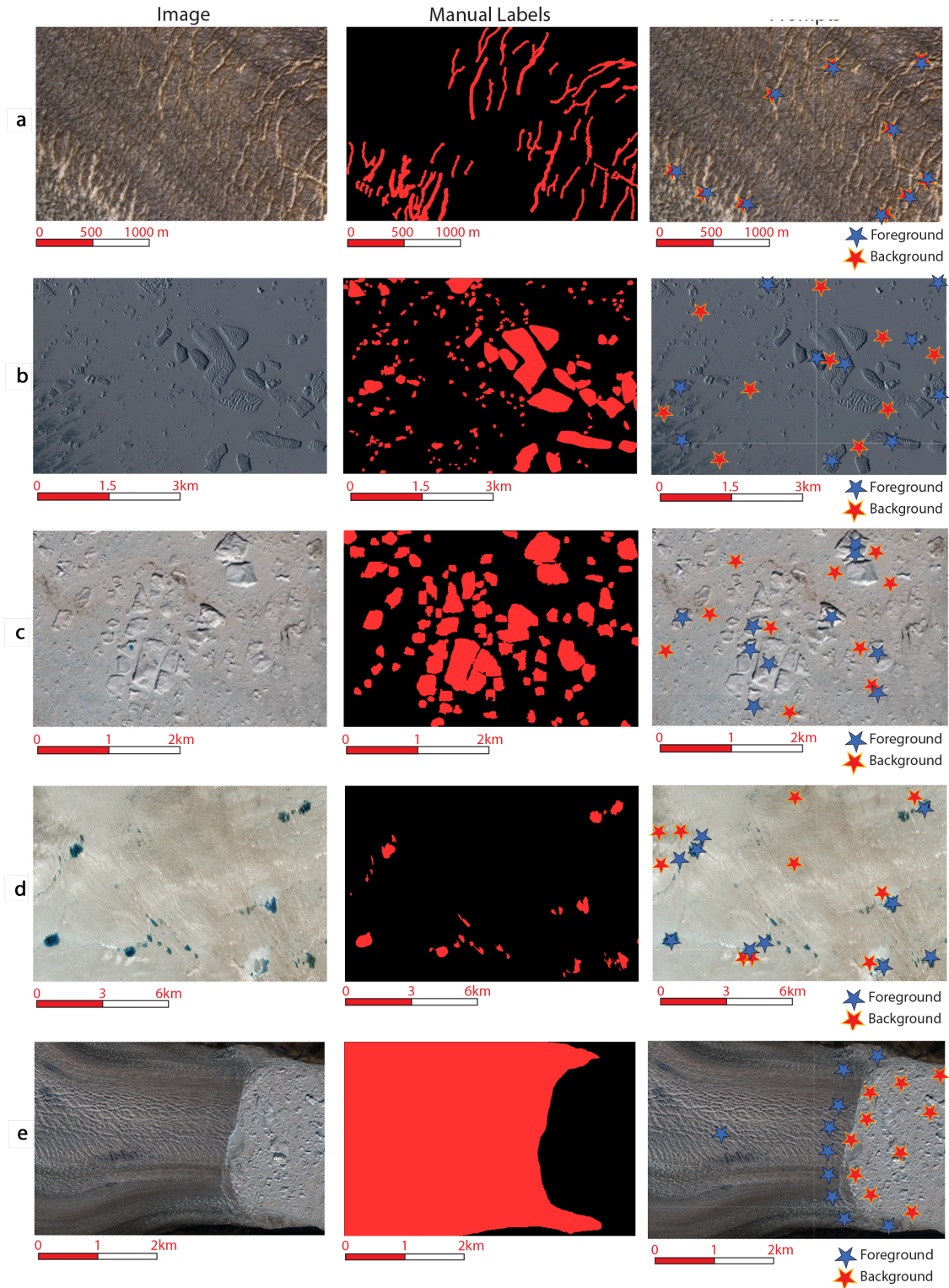


Figure S2: (a) crevasses, (b) icebergs in sea ice, (c) icebergs in pro-glacial mélangé, (d) supraglacial lakes, and (e) a glacier terminus. Manual annotations are shown in the central column. Locations for the foreground (blue stars) and background (red stars) prompts are in the last column.

### 3. Model comparison

The SAM model is available with three different modeling weights, ViT-B, ViT-H, ViT-L that have been trained with varying parameters. For glaciological datasets, we tested these three models to determine the most suitable model for our purposes. The ViT-L model performs better more consistently than the ViT-B and ViT-H models.

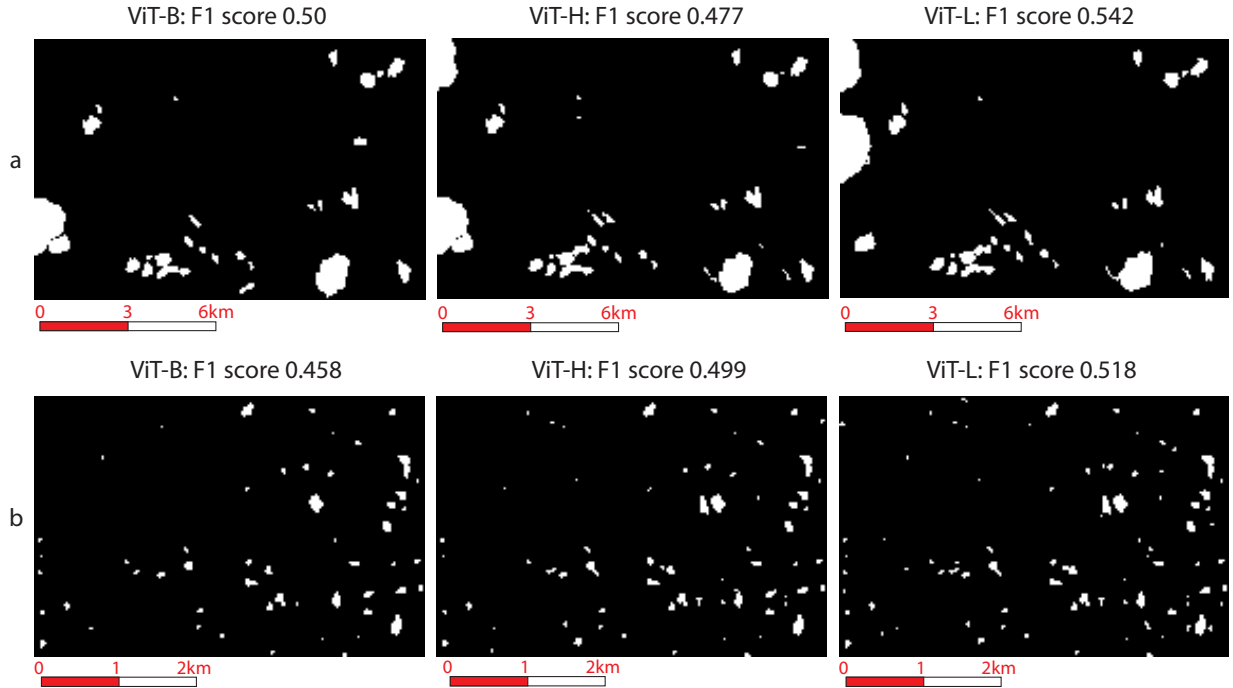


Figure S3: Model comparison of SAM. (a) Supraglacial lakes. (b) Icebergs.

## 4. Confusion Matrix for the SAM Analysis

To determine the F1 score, confusion matrices are calculated that presents the true positive, true negative, false positive, and false negative values for the predicted scene. Here we show the confusion matrices for the Figures 4, 5, and 7.

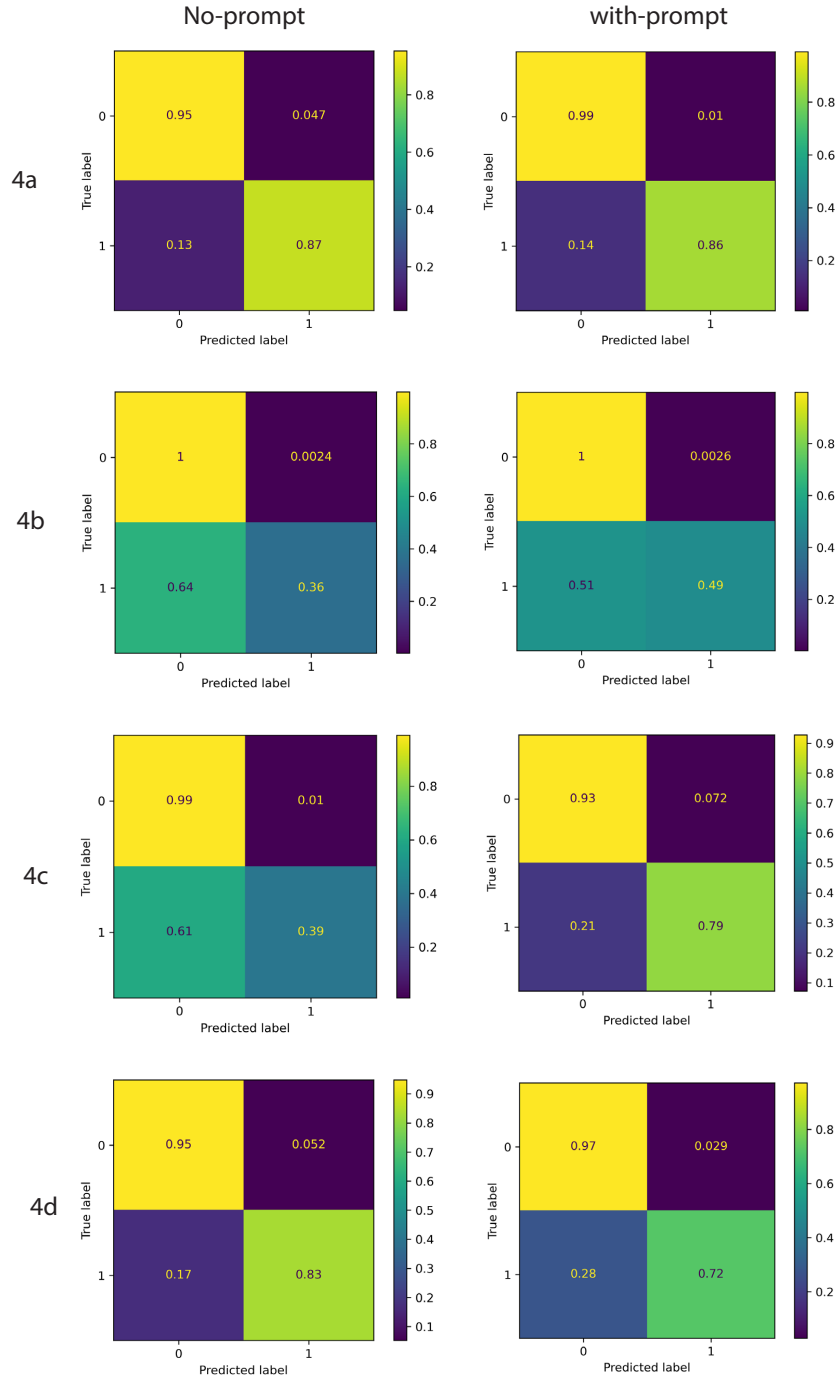


Figure S4: Confusion Matrix for Figure 4.

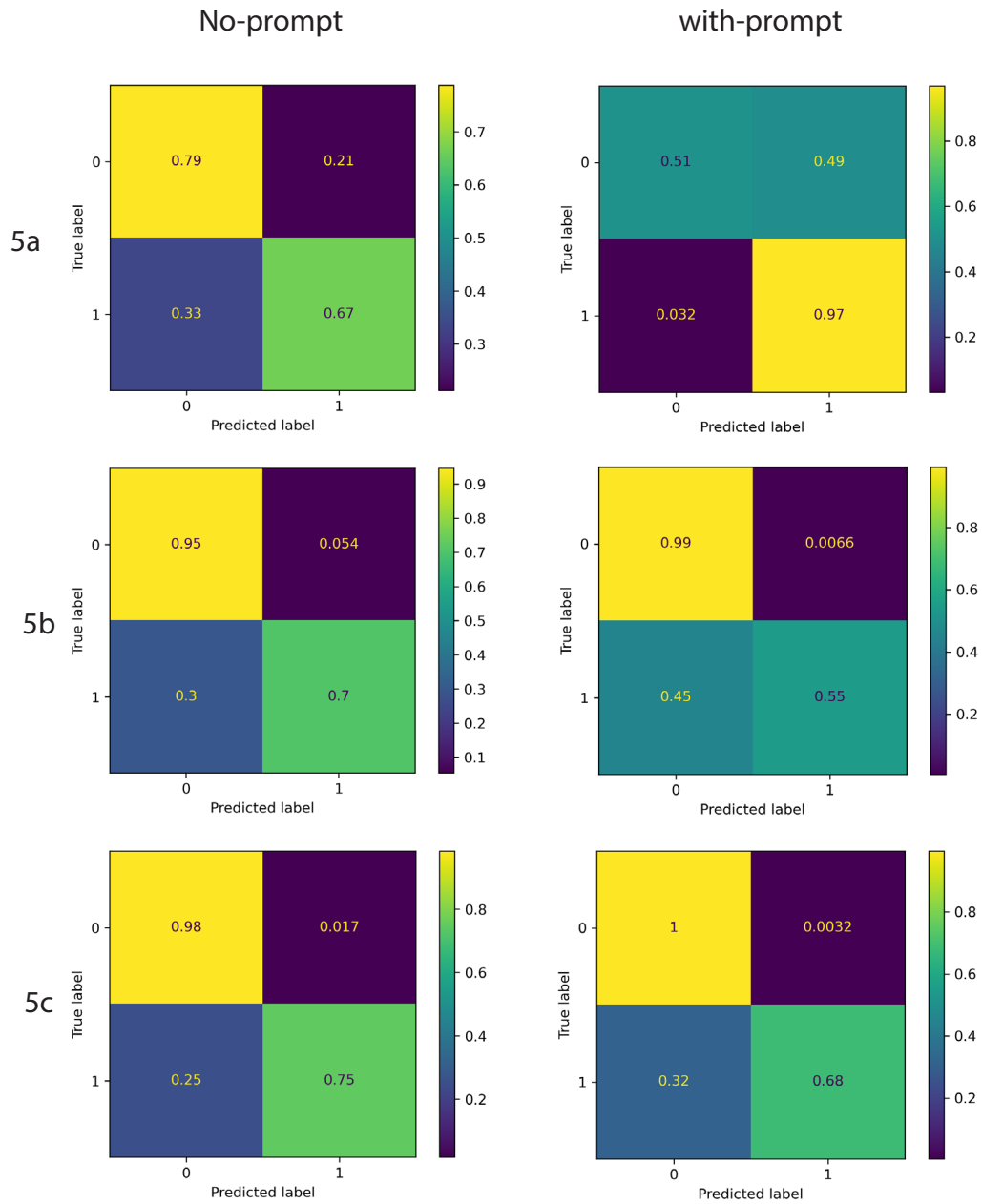


Figure S5: Confusion Matrix for Figure 5.

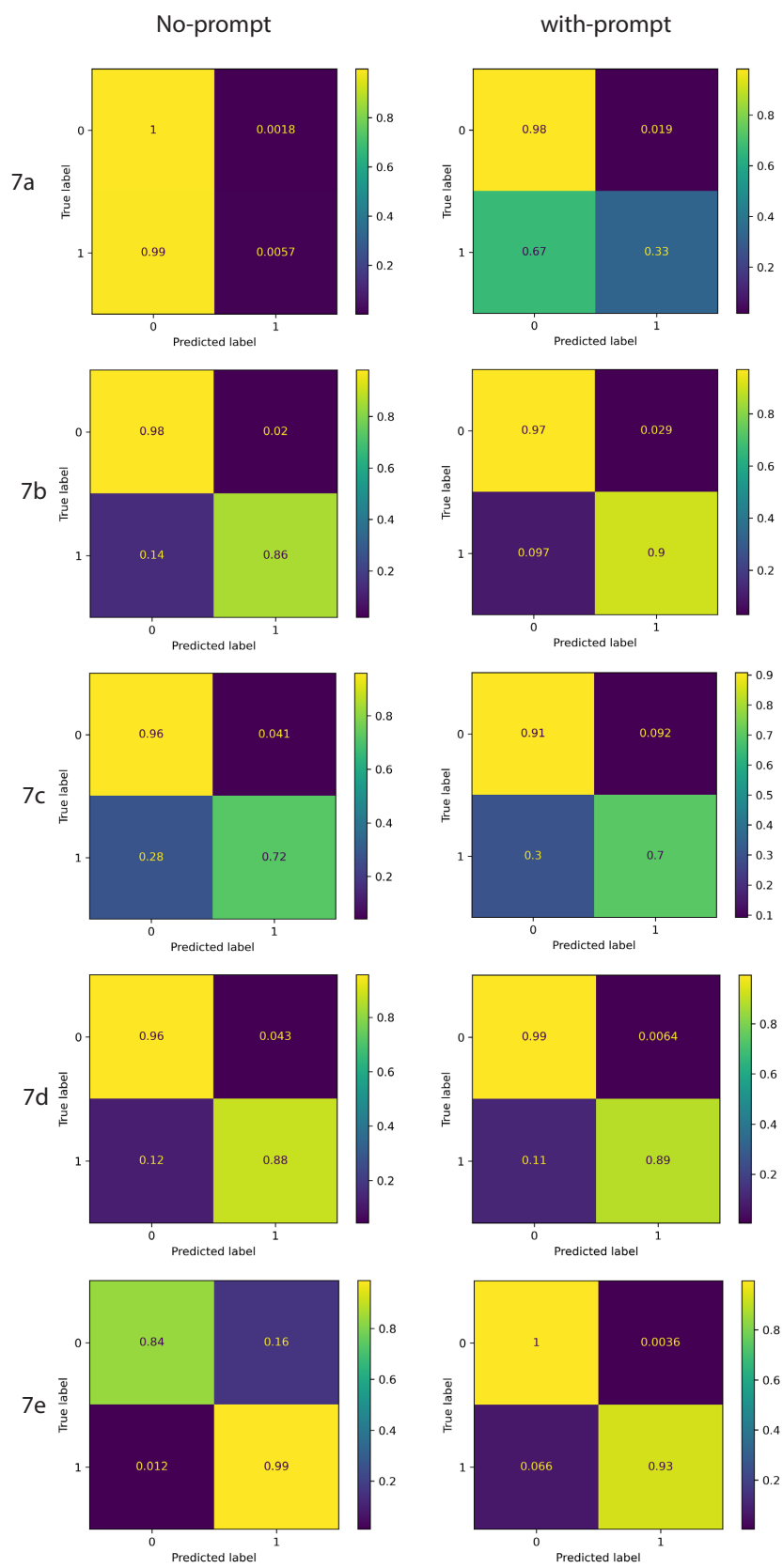


Figure S6: Confusion Matrix for Figure 7.