Appendix A. OxCal code of the Inca occupation of Chamical

Plot()

 {

 Curve("IntCal13","IntCal13.14c");

 Curve("SHCal13","SHCal13.14c");

 Mix\_Curve("Mixed","IntCal13","SHCal13",U(0,100));

 Sequence("Chamical")

 {

 Boundary("Start Inca occupation");

 Phase("Inca occupation")

 {

 Span("Span Inca occupation");

 Sequence()

 {

 Phase("Construction")

 {

 R\_Date("UGa-8801",410,25);

 R\_Date("UGa-3457",450,30);

 R\_Date("UGa-3458",450,25);

 Span("Span Construction");

 };

 Phase("burnt cane above floor, unit 2-A")

 {

 R\_Date("UGa-8803",440,25);

 R\_Date("UGa-3459",410,25);

 R\_Date("UGa-8802",380,25);

 };

 };

 };

 Boundary("End Inca occupation");

 R\_Date("UGa-3460",300,25);

 };

 Order("Order")

 {

 Date("AD 1463",AD(1463));

 Date("=Start Inca occupation");

 };

 Difference("Difference", "AD 1463","Start Inca occupation");

 };

Appendix B. OxCal code for the Inca phase model in Mendoza. Manually removed outliers are preceded by two forward slashes (//) and not processed by OxCal. This contains the same code for the independent site models, which were run separately before being incorporated into the Inca phase model.

Options()

 {

 Axis(400AD, 2000AD);

 Curve= "ShCal13.14c";

 PPP=50;

 };

 Plot()

 {

 Outlier\_Model("General",T(5),U(0,4),"t");

 Sequence()

 {

 MCMC\_Sample("FinalGOM", 25, 100000)

 {

 };

 Boundary("Start Inca Occupation");

 Phase("Inca Occupation")

 {

 Sequence()

 {

 Boundary("Start Cienaga de Yalguaraz");

 Phase("Cienaga de Yalguaraz")

 {

 // R\_Date("GIF-4607", 180, 80)

 // {

 // Outlier("General", 0.05);

 // color="blue";

 // };

 R\_Date("UZ-2525/ETH-5318", 485, 60)

 {

 Outlier("General", 0.05);

 color="blue";

 longitude=-69.366024;

 latitude=-32.098715;

 };

 R\_Date("UZ-2526/ETH-5319", 540, 55)

 {

 Outlier("General", 0.05);

 color="blue";

 longitude=-69.366024;

 latitude=-32.098715;

 };

 C\_Date("UCTL-315", 1440, 60)

 {

 Outlier("General", 0.05);

 color="blue";

 longitude=-69.366024;

 latitude=-32.098715;

 };

 C\_Date("UCTL-321", 1540, 40)

 {

 Outlier("General", 0.05);

 color="blue";

 longitude=-69.366024;

 latitude=-32.098715;

 };

 R\_Date("GaK-7312", 390, 90)

 {

 Outlier("General", 0.05);

 color="blue";

 longitude=-69.366024;

 latitude=-32.098715;

 };

 R\_Date("UZ-2527/ETH-5320", 420, 60)

 {

 Outlier("General", 0.05);

 color="blue";

 longitude=-69.366024;

 latitude=-32.098715;

 };

 C\_Date("UCTL-322", 1520, 40)

 {

 Outlier("General", 0.05);

 color="blue";

 longitude=-69.366024;

 latitude=-32.098715;

 };

 };

 Boundary("End Cienaga de Yalguaraz");

 };

 Sequence()

 {

 Boundary("Start Tambillos");

 Phase("Tambillos")

 {

 // C\_Date("UCTL-302", 1630, 40)

 // {

 // Outlier("General", 0.05);

 // color="brown";

 // };

 R\_Date("Beta-26283", 410, 70)

 {

 Outlier("General", 0.05);

 color="brown";

 longitude=-69.391240;

 latitude=-32.384097;

 };

 // C\_Date("UCTL-304", 1355, 70)

 // {

 // Outlier("General", 0.05);

 // color="brown";

 // longitude=-69.391240;

 // latitude=-32.384097;

 // };

 R\_Date("I-16637", 290, 130)

 {

 Outlier("General", 0.05);

 color="brown";

 longitude=-69.391240;

 latitude=-32.384097;

 };

 R\_Date("I-16908", 300, 80)

 {

 Outlier("General", 0.05);

 color="brown";

 longitude=-69.391240;

 latitude=-32.384097;

 };

 // R\_Date("Beta-25221", 770, 50)

 // {

 // Outlier("General", 0.05);

 // color="brown";

 //longitude=-69.391240;

 //latitude=-32.384097;

 // };

 R\_Date("I-16907", 310, 80)

 {

 Outlier("General", 0.05);

 color="brown";

 longitude=-69.391240;

 latitude=-32.384097;

 };

 C\_Date("UCTL-306", 1510, 50)

 {

 Outlier("General", 0.05);

 color="brown";

 longitude=-69.391240;

 latitude=-32.384097;

 };

 C\_Date("UCTL-303", 1510, 50)

 {

 Outlier("General", 0.05);

 color="brown";

 longitude=-69.391240;

 latitude=-32.384097;

 };

 // C\_Date("UCTL-301", 1350, 60)

 // {

 // Outlier("General", 0.05);

 // color="brown";

 //longitude=-69.391240;

 //latitude=-32.384097;

 // };

 };

 Boundary("End Tambillos");

 };

 Sequence()

 {

 Boundary("Start Ranchillos");

 Phase(Ranchillos)

 {

 // R\_Date("Beta-62946", 890, 80)

 // {

 // Outlier("General", 0.05);

 // color="red";

 // };

 // R\_Date("I-17003", 220, 80)

 // {

 // Outlier("General", 0.05);

 // color="red";

 // };

 // C\_Date("UCTL-317", 1620, 30)

 // {

 // Outlier("General", 0.05);

 // color="red";

 // };

 // R\_Date("Beta-69934", 640, 50)

 // {

 // Outlier("General", 0.05);

 // color="red";

 //longitude=-69.467489;

 //latitude=-32.604259;

 // };

 R\_Date("Beta-69933", 430, 50)

 {

 Outlier("General", 0.05);

 color="red";

 longitude=-69.467489;

 latitude=-32.604259;

 };

 R\_Date("I-17002", 290, 80)

 {

 Outlier("General", 0.05);

 color="red";

 longitude=-69.467489;

 latitude=-32.604259;

 };

 R\_Date("I-17004", 300, 80)

 {

 Outlier("General", 0.05);

 color="red";

 longitude=-69.467489;

 latitude=-32.604259;

 };

 C\_Date("UCTL-488", 1490, 50)

 {

 Outlier("General", 0.05);

 color="red";

 longitude=-69.467489;

 latitude=-32.604259;

 };

 C\_Date("UCTL-499", 1480, 50)

 {

 Outlier("General", 0.05);

 color="red";

 longitude=-69.467489;

 latitude=-32.604259;

 };

 C\_Date("UCTL-337", 1595, 45)

 {

 Outlier("General", 0.05);

 color="red";

 longitude=-69.467489;

 latitude=-32.604259;

 };

 C\_Date("UCTL-785", 1480, 50)

 {

 Outlier("General", 0.05);

 color="red";

 longitude=-69.467489;

 latitude=-32.604259;

 };

 C\_Date("UCTL-786", 1555, 45)

 {

 Outlier("General", 0.05);

 color="red";

 longitude=-69.467489;

 latitude=-32.604259;

 };

 };

 Boundary("End Ranchillos");

 };

 Sequence()

 {

 Boundary("Start Tambillitos");

 Phase("Tambillitos")

 {

 R\_Date("Beta-88786", 540, 100)

 {

 Outlier("General", 0.05);

 color="green";

 longitude=-69.583170;

 latitude=-32.750942;

 };

 C\_Date("UCTL-787", 1440, 60)

 {

 Outlier("General", 0.05);

 color="green";

 longitude=-69.583170;

 latitude=-32.750942;

 };

 R\_Date("Beta-88787", 460, 80)

 {

 Outlier("General", 0.05);

 color="green";

 longitude=-69.583170;

 latitude=-32.750942;

 };

 C\_Date("UCTL-323", 1555, 45)

 {

 Outlier("General", 0.05);

 color="green";

 longitude=-69.583170;

 latitude=-32.750942;

 };

 };

 Boundary("End Tambillitos");

 };

 Sequence()

 {

 Boundary("Start Agua Amarga");

 Phase("Agua Amarga")

 {

 R\_Date("Beta-261727",450,50)

 {

 Outlier("General", 0.05);

 color="violet";

 longitude=-69.191472;

 latitude=-33.471806;

 };

 C\_Date("UCTL 1725c",1432,55)

 {

 Outlier("General", 0.05);

 color="violet";

 longitude=-69.191472;

 latitude=-33.471806;

 };

 // C\_Date("UCTL 1724c",1608,40)

 // {

 // Outlier("General", 0.05);

 // color="violet";

 // longitude=-69.191472;

 // latitude=-33.471806;

 // };

 C\_Date("UCTL 1726c",1563,48)

 {

 Outlier("General", 0.05);

 color="violet";

 longitude=-69.191472;

 latitude=-33.471806;

 };

 };

 Boundary("End Agua Amarga");

 };

 R\_Combine("Aconcagua")

 {

 Outlier("General", 0.05);

 color="black";

 longitude=-70.033320;

 latitude=-32.666234;

 R\_Date("GX-19991 ", 370, 70);

 R\_Date("Beta-88785", 480, 40);

 };

 R\_Date("Agua de la Cueva, AC-1563", 470, 80)

 {

 Outlier("General", 0.05);

 color="purple";

 longitude=-69.161730;

 latitude=-32.616525;

 };

 R\_Date("Cerro Penitentes, Beta-98941", 550, 50)

 {

 Outlier("General", 0.05);

 color="orange";

 longitude=-69.873482;

 latitude=-32.891032;

 };

 R\_Date("Potrero Las Colonias, AA-66564", 569, 38)

 {

 Outlier("General", 0.05);

 color="grey";

 longitude=-69.363465;

 latitude=-32.606298;

 };

 R\_Date("Odisa, AA-90284", 529, 42)

 {

 Outlier("General", 0.05);

 color="cyan";

 longitude=-68.832025;

 latitude=-32.862113;

 };

 };

 Sum("Inca Occupation Sum");

 Span("Inca Occupation Span");

 Boundary("End Inca Occupation");

 Before("Sites in ruins", 1595);

 };

 Date("1471",AD(1471) );

 Difference("Start v. AD 1471","Start Inca Occupation","1471");

 Order("Order")

 {

 XReference("=Start Cienaga de Yalguaraz");

 XReference("=Start Tambillos");

 XReference("=Start Ranchillos");

 XReference("=Start Tambillitos");

 XReference("=Start Agua Amarga");

 XReference("=Aconcagua");

 XReference("=Agua de la Cueva, AC-1563");

 XReference("=Cerro Penitentes, Beta-98941");

 XReference("=Potrero Las Colonias, AA-66564");

 XReference("=Odisa, AA-90284");

 };

 };