**A CONTEXT-APPROPRIATE APPROACH TO MARINE 14C** **CALIBRATION: ∆R AND BAYESIAN FRAMEWORK FOR THE NUVUK CEMETERY, POINT BARROW, ALASKA**

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**SUPPLEMENTAL MATERIAL: OXCAL CODE**

MODEL 1:

Plot()

{

Sequence()

{

Boundary("Model 1: Start Nuvuk Cemetery");

Phase("Nuvuk Cemetery")

{

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

Curve("Marine13","Marine13.14c");

Delta\_R("LocalMarine",450 ,84);

Mix\_Curve("Mixed","IntCal13","LocalMarine",70.2,10);

R\_Date("AA89599", 1318, 37);

Mix\_Curve("Mixed","IntCal13","LocalMarine",69,10);

R\_Date("AA89600", 1331, 41);

Mix\_Curve("Mixed","IntCal13","LocalMarine",54.8,10);

R\_Date("AA89601", 1051, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",65.4,10);

R\_Date("AA89602", 1401, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",60.3,10);

R\_Date("AA89603", 823, 33);

Mix\_Curve("Mixed","IntCal13","LocalMarine",68,10);

R\_Date("AA89604", 1085, 37);

Mix\_Curve("Mixed","IntCal13","LocalMarine",92.6,10);

R\_Date("AA89605", 1586, 41);

Mix\_Curve("Mixed","IntCal13","LocalMarine",88,10);

R\_Date("AA89606", 1460, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",63.8,10);

R\_Date("AA89607", 1328, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",59.9,10);

R\_Date("AA89608", 1380, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",65,10);

R\_Date("AA89609", 1292, 43);

Mix\_Curve("Mixed","IntCal13","LocalMarine",74.9,10);

R\_Date("AA89610", 1081, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",71.5,10);

R\_Date("AA89611", 1354, 40);

Mix\_Curve("Mixed","IntCal13","LocalMarine",53.5,10);

R\_Date("AA89612", 1326, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",74.9,10);

R\_Date("AA89613", 1407, 41);

Mix\_Curve("Mixed","IntCal13","LocalMarine",63.1,10);

R\_Date("AA89614", 1092, 40);

Mix\_Curve("Mixed","IntCal13","LocalMarine",69.3,10);

R\_Date("AA89615", 1353, 45);

Mix\_Curve("Mixed","IntCal13","LocalMarine",74.3,10);

R\_Date("AA89616", 1311, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",62.2,10);

R\_Date("AA89617", 894, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",76.3,10);

R\_Date("AA89618", 1398, 49);

Mix\_Curve("Mixed","IntCal13","LocalMarine",72.8,10);

R\_Date("AA89619", 1463, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",84.9,10);

R\_Date("AA89620", 1310, 36);

Mix\_Curve("Mixed","IntCal13","LocalMarine",76.9,10);

R\_Date("AA89621", 1239, 43);

Mix\_Curve("Mixed","IntCal13","LocalMarine",73.6,10);

R\_Date("AA89622", 1130, 44);

Mix\_Curve("Mixed","IntCal13","LocalMarine",68.6,10);

R\_Date("AA89623", 1299, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",61.6,10);

R\_Date("AA89624", 1390, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",80.3,10);

R\_Date("AA89625", 1397, 46);

Mix\_Curve("Mixed","IntCal13","LocalMarine",74.7,10);

R\_Date("AA89626", 1377, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",71.3,10);

R\_Date("AA89627", 963, 41);

Mix\_Curve("Mixed","IntCal13","LocalMarine",73.1,10);

R\_Date("AA89628", 1295, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",78.9,10);

R\_Date("AA89629", 1282, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",89.4,10);

R\_Date("AA89630", 1402, 33);

Mix\_Curve("Mixed","IntCal13","LocalMarine",80.1,10);

R\_Date("AA100197", 1280, 50);

Mix\_Curve("Mixed","IntCal13","LocalMarine",84,10);

R\_Date("14B/0719", 1390, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",83.9,10);

R\_Date("14B/0720", 1110, 20);

Mix\_Curve("Mixed","IntCal13","LocalMarine",57.5,10);

R\_Date("14B/0721", 1190, 20);

Mix\_Curve("Mixed","IntCal13","LocalMarine",77.1,10);

R\_Date("AA103365", 1370, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",68.5,10);

R\_Date("AA103366", 1171, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",66.2,10);

R\_Date("AA103367", 803, 38);

Mix\_Curve("Mixed","IntCal13","LocalMarine",72.9,10);

R\_Date("AA103368", 1399, 40);

Mix\_Curve("Mixed","IntCal13","LocalMarine",80.2,10);

R\_Date("14B/0722", 1390, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",69.1,10);

R\_Date("AA103369", 1246, 58);

Mix\_Curve("Mixed","IntCal13","LocalMarine",80.4,10);

R\_Date("14B/0723", 1310, 20);

Mix\_Curve("Mixed","IntCal13","LocalMarine",66.9,10);

R\_Date("14B/0724", 1290, 20);

Mix\_Curve("Mixed","IntCal13","LocalMarine",85.8,10);

R\_Date("14B/0725", 1350, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",69.3,10);

R\_Date("AA103370", 1300, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",91.4,10);

R\_Date("AA103371", 1484, 52);

Mix\_Curve("Mixed","IntCal13","LocalMarine",75.9,10);

R\_Date("14B/0726", 1320, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",85.7,10);

R\_Date("14B/0727", 1340, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",78,10);

R\_Date("14B/0728", 1320, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",95.2,10);

R\_Date("AA103372", 1539, 44);

Mix\_Curve("Mixed","IntCal13","LocalMarine",67.1,10);

R\_Date("AA103373", 1347, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",77.5,10);

R\_Date("AA103374", 1395, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",78.8,10);

R\_Date("AA103375", 1493, 40);

};

Boundary("Model 1: End Nuvuk Cemetery");

Span("Nuvuk Cemetery Span");

};

};

MODEL 2:

Plot()

{

Sequence()

{

Boundary("Model 2: Start Nuvuk Cemetery");

Phase("Nuvuk Cemetery")

{

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

Curve("Marine13","Marine13.14c");

Delta\_R("LocalMarine",450 ,84);

Mix\_Curve("Mixed","IntCal13","LocalMarine",87.5,10);

R\_Date("AA89599", 1318, 37);

Mix\_Curve("Mixed","IntCal13","LocalMarine",85.4,10);

R\_Date("AA89600", 1331, 41);

Mix\_Curve("Mixed","IntCal13","LocalMarine",62.5,10);

R\_Date("AA89601", 1051, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",79.2,10);

R\_Date("AA89602", 1401, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",70.8,10);

R\_Date("AA89603", 823, 33);

Mix\_Curve("Mixed","IntCal13","LocalMarine",83.3,10);

R\_Date("AA89604", 1085, 37);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA89605", 1586, 41);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA89606", 1460, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",77.1,10);

R\_Date("AA89607", 1328, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",70.8,10);

R\_Date("AA89608", 1380, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",79.2,10);

R\_Date("AA89609", 1292, 43);

Mix\_Curve("Mixed","IntCal13","LocalMarine",95.8,10);

R\_Date("AA89610", 1081, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",89.6,10);

R\_Date("AA89611", 1354, 40);

Mix\_Curve("Mixed","IntCal13","LocalMarine",60.4,10);

R\_Date("AA89612", 1326, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",95.8,10);

R\_Date("AA89613", 1407, 41);

Mix\_Curve("Mixed","IntCal13","LocalMarine",75,10);

R\_Date("AA89614", 1092, 40);

Mix\_Curve("Mixed","IntCal13","LocalMarine",85.4,10);

R\_Date("AA89615", 1353, 45);

Mix\_Curve("Mixed","IntCal13","LocalMarine",93.8,10);

R\_Date("AA89616", 1311, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",75,10);

R\_Date("AA89617", 894, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",97.9,10);

R\_Date("AA89618", 1398, 49);

Mix\_Curve("Mixed","IntCal13","LocalMarine",91.7,10);

R\_Date("AA89619", 1463, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA89620", 1310, 36);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA89621", 1239, 43);

Mix\_Curve("Mixed","IntCal13","LocalMarine",93.8,10);

R\_Date("AA89622", 1130, 44);

Mix\_Curve("Mixed","IntCal13","LocalMarine",85.4,10);

R\_Date("AA89623", 1299, 35);

Mix\_Curve("Mixed","IntCal13","LocalMarine",72.9,10);

R\_Date("AA89624", 1390, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA89625", 1397, 46);

Mix\_Curve("Mixed","IntCal13","LocalMarine",95.8,10);

R\_Date("AA89626", 1377, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",89.6,10);

R\_Date("AA89627", 963, 41);

Mix\_Curve("Mixed","IntCal13","LocalMarine",91.7,10);

R\_Date("AA89628", 1295, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA89629", 1282, 34);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA89630", 1402, 33);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA100197", 1280, 50);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("14B/0719", 1390, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("14B/0720", 1110, 20);

Mix\_Curve("Mixed","IntCal13","LocalMarine",66.7,10);

R\_Date("14B/0721", 1190, 20);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA103365", 1370, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",85.4,10);

R\_Date("AA103366", 1171, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",81.3,10);

R\_Date("AA103367", 803, 38);

Mix\_Curve("Mixed","IntCal13","LocalMarine",91.7,10);

R\_Date("AA103368", 1399, 40);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("14B/0722", 1390, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",85.4,10);

R\_Date("AA103369", 1246, 58);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("14B/0723", 1310, 20);

Mix\_Curve("Mixed","IntCal13","LocalMarine",83.3,10);

R\_Date("14B/0724", 1290, 20);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("14B/0725", 1350, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",85.4,10);

R\_Date("AA103370", 1300, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA103371", 1484, 52);

Mix\_Curve("Mixed","IntCal13","LocalMarine",97.9,10);

R\_Date("14B/0726", 1320, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("14B/0727", 1340, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("14B/0728", 1320, 30);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA103372", 1539, 44);

Mix\_Curve("Mixed","IntCal13","LocalMarine",83.3,10);

R\_Date("AA103373", 1347, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA103374", 1395, 39);

Mix\_Curve("Mixed","IntCal13","LocalMarine",100,10);

R\_Date("AA103375", 1493, 40);

};

Boundary("Model 2: End Nuvuk Cemetery");

Span("Nuvuk Cemetery Span");

};

};