**Developing the Bayesian Model**

Bayesian models combine the date ranges for multiple carbon dates with researchers’ interpretations of phases and stratigraphic relationships to reduce the ranges provided by individual absolute dates (Bayliss and Bronk Ramsey 2004; Bronk Ransey 2009). Decisions that must be made include the division of samples from one phase to another, the relationships between samples (stratigraphic, etc.), and the indication of outliers and other problematic samples so that they do not drive the results. Several of these choices were necessary for the creation of the model in Figure 8 and results generated in Table 4. These choices and the reasoning that supports them are described below. The Bayesian plot in Figure 8 was created using the IntCal13 calibration curve (Reimer et al. 2013) in the OxCal 4.2.4 program (Bronk Ramsey 2014).

For most of the NWAF samples, I used the phase designation given by Lowe and Lee (Lowe et al.1982: Table 7.1). For two NWAF samples, Lowe and Lee indicated that the C14 date was unacceptable. These were I-876, associated with the Early Guillen phase, and I-1217, associated with the Kato phase. I have followed their original assessment by annotating them as outliers in the present model. In addition, I have marked sample I-1211, associated with the Late Guillen phase, as an outlier. I decided to indicate this sample as an outlier because the C14 distribution associated with the Mound 60 posthole suggests a better match for the Terminal Formative period. Ceramics from this context might have been associated with either the Guillen or the “Protoclassic” Hato and Itstapa phases. Because Lowe had stated that “the few whole vessels and potsherd lots from the mound fill [in Mound 60] support this general Late Preclassic or Protoclassic dating” (Lowe 1963: Figure 1), it seemed plausible that the date was associated with a Terminal Formative context rather than the Guillen phase.

The distribution for Sample I-877, on the other hand, was not marked as an outlier by Lowe and colleagues (1982: Table 7.1) looked appropriate for its Guillen-phase designation, so I did not separate that sample as an outlier. The stratigraphy associated with these two samples is described and illustrated in Clark and Lee (2013: 57-62, Fig. 43). It should be noted that the later Sample I-1211 (depth 4.7 m) was recovered from above Sample I-877 (depth 2.45m) (Lowe et al. 1982: Table 7.1). This suggests three possibilities. Either 1. the date of sample I-877 was not correct, 2. The top 5 meters of Mound 60 was constructed later than previously reported, or 3. Mound 60 included an intrusive deposit that was not noted by Lowe. Given the ubiquity of intrusive offerings at Izapa, any of these possibilities seem plausible. What is of most concern for the present discussion is that I-1211 may not be good date for the Guillen phase at Izapa and, so, was removed from consideration through its indication as an outlier. I did, however, maintain the “Late Guillen” label given to Sample I-1211 in the 1982 report, despite these suspicions.

Because the three Itstapa phase samples recovered by the NWAF were recovered in a known stratigraphic relationship, I included them together as a sequence. Samples I-654 and I-4548 were encountered in Structure 125a-I2, below Floor 3 (Lowe et al. 1982: Fig. 13.17), so I placed them together as a phase. Sample I-4548 was recovered above Floor 3, within Structure 125a-I2 (Lowe et al. 1982: Fig. 13.17). This sample was included next in the sequence, but included outside of the phase to indicate that it was deposited later.

 For the IHAP samples, I tagged both AA105647 and AA105650 as outliers. These samples were recovered from contexts with ceramics associated with the Early Classic Jaritas and Kato phases, respectively, but had distributions that correlate better with the Guillen phase, lying well outside of the range expected for the Early Classic period. These samples likely represent old carbon. These and the outliers highlighted above were excluded from the Bayesian model, though they were included in the Figure 8 plot, so that a visible comparison of ranges can be observed. Outliers are labeled by the OxCal convention, which places a question mark after their description.

I grouped the three samples recovered from Mound 260 as a “sequence” because they were recovered with a known stratigraphic relationship. Sample AA105647 (the outlier) was plotted first, as it was recovered below Samples AA106726 and AA106727. However, because AA105647 was an outlier, this relationship should not have driven the model. Samples AA106726 and AA106727 were linked together as a “phase,” as they were both recovered from the flotation of soil samples recovered from the same vessel in the Suboperation 105c trash pit. This apparently helped to narrow down the date from Sample AA106727’s bimodal distribution to the later half of the distribution.

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2013 INTCAL13 and MARINE 13 Radiocarbon Age Calibration Curves 0-50,000 Years Cal BP. *Radiocarbon* 55: 1869-1887.

**OxCal Code**

Plot()

 {

 Sequence("Izapa, Guillen to Kato")

 {

 Boundary("Start Early Guillen");

 Phase("Early Guillen")

 {

 R\_Date("I-876 M58, Exc. 1, on floor", 2695, 120)

 {

 Outlier();

 };

 };

 Phase("Guillen")

 {

 R\_Date("I-872 M61, Exc. B, Sec. N4, F. 2", 2205, 95);

 R\_Date("I-877 M60, Exc. A, Level 12, on floor", 2100, 90);

 };

 Phase("Late Guillen")

 {

 R\_Date("I-1211 M60, Exc. A, hearth/posthole", 1855, 140)

 {

 Outlier();

 };

 };

 Boundary("Guillen-Hato");

 Phase("Hato")

 {

 R\_Date("I-871 M30a, B, inside partial vessel", 2100, 110);

 R\_Date("AA-105648 Base of M255, Subop. 104a", 1961, 43);

 };

 Boundary("Hato-Itstapa");

 Phase("Itstapa")

 {

 R\_Date("AA-105649, M255, Subop. 104e, next to vessel", 1832, 52);

 Sequence("Mound 125a")

 {

 Boundary("Start Mound 125a Sequence");

 Phase("Structure I2")

 {

 R\_Date("I-4548 M125a, Exc. A, below Floor 3", 1830, 95);

 R\_Date("I-1654 M125a, Exc. A, F. 89-4", 1790, 150);

 };

 R\_Date("I-1653 M125a, Exc. A, on floor 3", 1850, 200);

 Boundary("End Mound 125a Sequence");

 };

 };

 Boundary("Itstapa-Jaritas");

 Phase("Jaritas")

 {

 R\_Date("I-1210 M125a, Exc. A, F. 51", 1565, 145);

 Sequence("Mound 260")

 {

 Boundary("Start Mound 260 Sequence");

 R\_Date("AA-105647, M260, Subop. 105a, clay feature", 2191, 59)

 {

 Outlier();

 };

 Phase(Vessel)

 {

 R\_Date("AA-106727, M260, Subop. 105c, inside vessel in trash pit", 1708, 25);

 R\_Date("AA-106726, M260, Subop. 105c, inside vessel in trash pit", 1654, 25);

 };

 Boundary("End Mound 260 Sequence");

 };

 };

 Boundary("Jaritas-Kato");

 R\_Date("I-1217 M125a, Exc. A, F. 26", 2330, 220)

 {

 Outlier();

 };

 R\_Date("AA-105650, M97, Subop. 101a, below floor", 2129, 41)

 {

 Outlier();

 };

 Boundary("End Kato");

 };

 };