

Supplementary Material for The Lack of Archaeological Evidence for a Statehood Event in Pre-Contact Hawai'i

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1 Introduction

This file contains links to the OxCal input files used to create Figures 1–3 in the paper, "The Lack of Archaeological Evidence for a Statehood Event in Pre-Contact Hawai'i" (table 1). It also includes source code for the R statistical software routines used to produce the graphic files for the figures.

2 OxCal Input Files

The OxCal input files can be extracted by clicking on the symbol in the column, `Link to file` (table 1). The result of clicking on the symbol depends upon how your system is set up to display files of mime type `text/plain`. You can save the files to any name you want, but be aware that OxCal dislikes hyphens in file names and expects the file name suffix to be `.oxcal`. Note that the OxCal input files are each set up to write MCMC output to a disk file named in the input file. These MCMC file names are assumed by the R code for figures.

Table 1: OxCal input files for figures

Figure	File name	Link to file
1	<code>habitations.oxcal</code>	
2	<code>kirch_kahikinui_fig_4.oxcal</code>	
3	<code>rain_fed_ag_temples.oxcal</code>	

3 R Code for Figures

This section presents R statistical software code to reproduce the three figures in the paper. The source code assumes that the `ArchaeoPhases` and `ggplot2` libraries are correctly installed. Note that the file names passed to the `ImportCSV()` function are specified in the OxCal input files.

3.1 Figure 1: Habitations

Listing 1 provides the R statistical software code to produce Figure 1. Note that you might need to specify the correct path to the argument of the `ImportCSV()` function, depending on where you have this file in your system.

```
library(ArchaeoPhases)
library(ggplot2)
theme_set(theme_bw())
habitation.events <- ImportCSV("habitation_mcmc.csv",
                              iterationColumn = 1)
habitation.index <- c(42, 48, 52, 56, 59, 62, 66, 69, 72, 75, 78, 81, 84, 87)
res <- TempoPlot(habitation.events, habitation.index,
                 title = "Habitation Construction",
                 colors = FALSE,
                 height = 3.5, width = 7.8,
                 x.label = "Years after colonization",
                 caption = NULL,
                 file = "habitation.pdf",
                 x.scale = "elapsed",
                 elapsed.origin.position = 4)
```

Listing 1: Source code to produce Figure 1

3.2 Figure 2: Ad Hoc Temple Construction

Listing 2 provides the R statistical software code to produce Figure 2. Note that you might need to specify the correct path to the argument of the `ImportCSV()` function, depending on where you have this file in your system.

```
library(ArchaeoPhases)
library(ggplot2)
theme_set(theme_bw())
kirch.events <- ImportCSV("kirch_mcmc.csv",
                          iterationColumn = 1)

kirch.index <- c(40:66)
kirch.res <- TempoPlot(kirch.events, kirch.index,
                       title = "Ad Hoc Temple Construction",
                       colors = FALSE,
                       height = 3.5, width = 7.8,
                       y.label = "Cumulative pseudo-events",
                       x.label = "Calendar year AD",
                       caption = NULL,
                       file = "kirch-fig-4.pdf")
```

Listing 2: Source code to produce Figure 2

3.3 Figure 3: Agricultural Temple Construction

Listing 3 provides the R statistical software code to produce Figure 3. Note that you might need to specify the correct path to the argument of the `ImportCSV()` function, depending on where you have this file in your system.

```
library(ArchaeoPhases)
library(ggplot2)
theme_set(theme_bw())
rainfed.events <- ImportCSV("temples_mcmc.csv",
                           iterationColumn = 1)
rainfed.index <- c(42, 45, 48, 54, 57, 60, 64, 68, 73, 76, 79, 82, 85, 88, 92, 96,
                  99, 102, 106, 110, 113, 116, 119)
rainfed.res <- TempoPlot(rainfed.events, rainfed.index,
                        title = "Agricultural Temple Construction",
                        colors = FALSE,
                        height = 3.5, width = 7.8,
                        x.label = "Calendar year",
                        caption = NULL,
                        file = "agricultural-temple.pdf")
```

Listing 3: Source code to produce Figure 3