

# Electronic Supplementary Material for the paper ‘A multi-proxy inference of Jōmon population dynamics using Bayesian phase models, residential data, and summed probability distribution of 14C dates’

*E. Crema*

## Setup and Introduction

This pdf document was rendered from an R markdown document in order to ensure full reproducibility. Readers interested in accessing the source file and associated data can download the entire repository from [github](#). Notice that the entire workflow requires long processing time (i.e. > 24 hours) and the use of external software (i.e. OxCal), hence major analysis were pre-processed (see the `log.R` file in the repository) and stored into a series of R images. For further information please read the `README.md` document in the repository.

## Dataset Summary

**ESM Table 1. Summary of Radiocarbon Dates for Bayesian Modelling**

	Hokkaido	Tohoku	Kanto	Chubu	Hokuriku	Tokai	Kinai	ChuShikoku	Kyushu	Total
S0	0	8	5	0	0	0	0	0	3	16
S1.1	0	1	3	5	22	1	1	2	29	64
S1.2	0	0	11	10	7	15	0	0	34	77
S2.1	0	2	6	1	30	26	9	0	20	94
S2.2	0	7	3	0	1	13	14	0	0	38
S3	0	9	15	19	11	11	1	0	41	107
S4	1	6	0	5	1	1	0	5	26	45
S5	2	8	8	0	0	0	0	0	4	22
S6	7	2	5	0	0	0	0	0	0	14
S7	1	6	3	0	7	4	0	0	27	48
S8	0	17	3	0	0	21	17	12	15	85
Z1	0	20	0	2	18	2	6	1	7	56
Z2	0	6	8	2	0	0	7	2	6	31
Z3	0	2	46	3	0	0	4	0	0	55
Z4	0	8	0	6	0	0	2	0	0	16
Z5	0	9	4	7	2	0	8	29	0	59
Z6	4	12	0	2	8	0	3	3	1	33
Z7	0	14	3	1	10	0	0	1	0	29
C1	0	2	4	0	2	0	2	0	0	10
C2~4	0	9	2	8	0	0	0	0	0	19
C5~6	0	9	3	8	1	0	1	0	0	22
C7~8	0	3	17	12	1	0	0	0	0	33
C9	1	11	31	14	2	0	2	0	0	61
C10	0	20	29	8	0	0	1	0	0	58
C11	1	9	17	8	2	0	4	0	0	41
C12	2	31	54	18	1	0	0	0	0	106

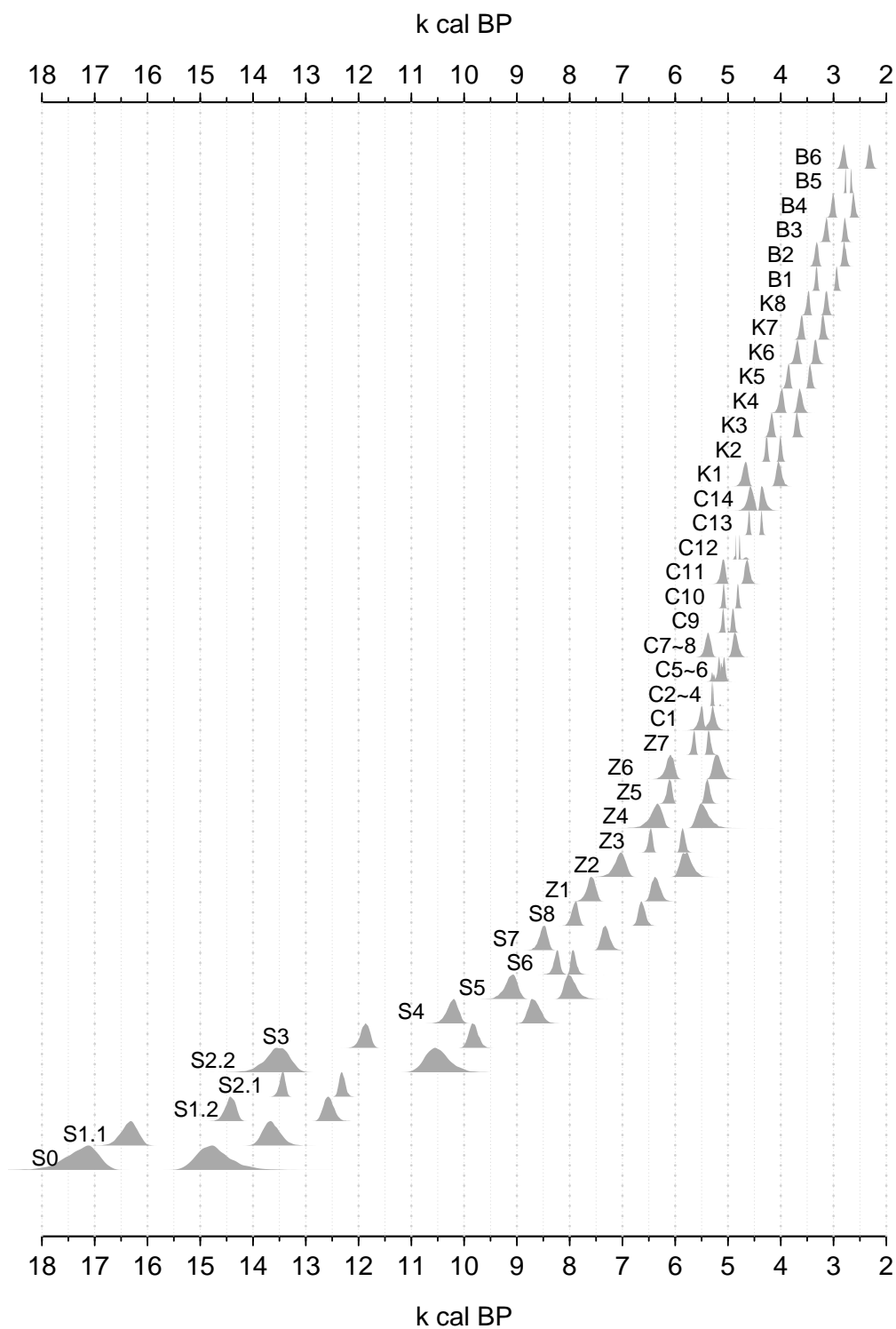
	Hokkaido	Tohoku	Kanto	Chubu	Hokuriku	Tokai	Kinai	ChuShikoku	Kyushu	Total
C13	0	47	9	6	0	0	0	0	2	64
C14	0	5	5	1	0	0	0	0	0	11
K1	0	7	12	2	1	0	1	9	5	37
K2	1	2	48	3	1	0	41	2	5	103
K3	0	1	14	8	5	0	1	9	16	54
K4	0	3	18	1	4	0	0	0	2	28
K5	0	3	29	0	0	0	1	21	4	58
K6	8	4	13	0	0	0	0	0	1	26
K7	15	3	20	1	7	0	0	0	1	47
K8	0	6	13	4	1	5	0	0	10	39
B1	0	10	7	2	15	4	7	19	25	89
B2	1	16	9	0	11	0	11	11	14	73
B3	0	17	6	0	14	0	2	3	2	44
B4	0	39	7	0	5	0	0	3	0	54
B5	0	20	1	1	11	7	2	16	0	58
B6	1	16	1	0	6	0	65	4	3	96

**ESM Table 2. Summary of Radiocarbon Dates for Bayesian Modelling**

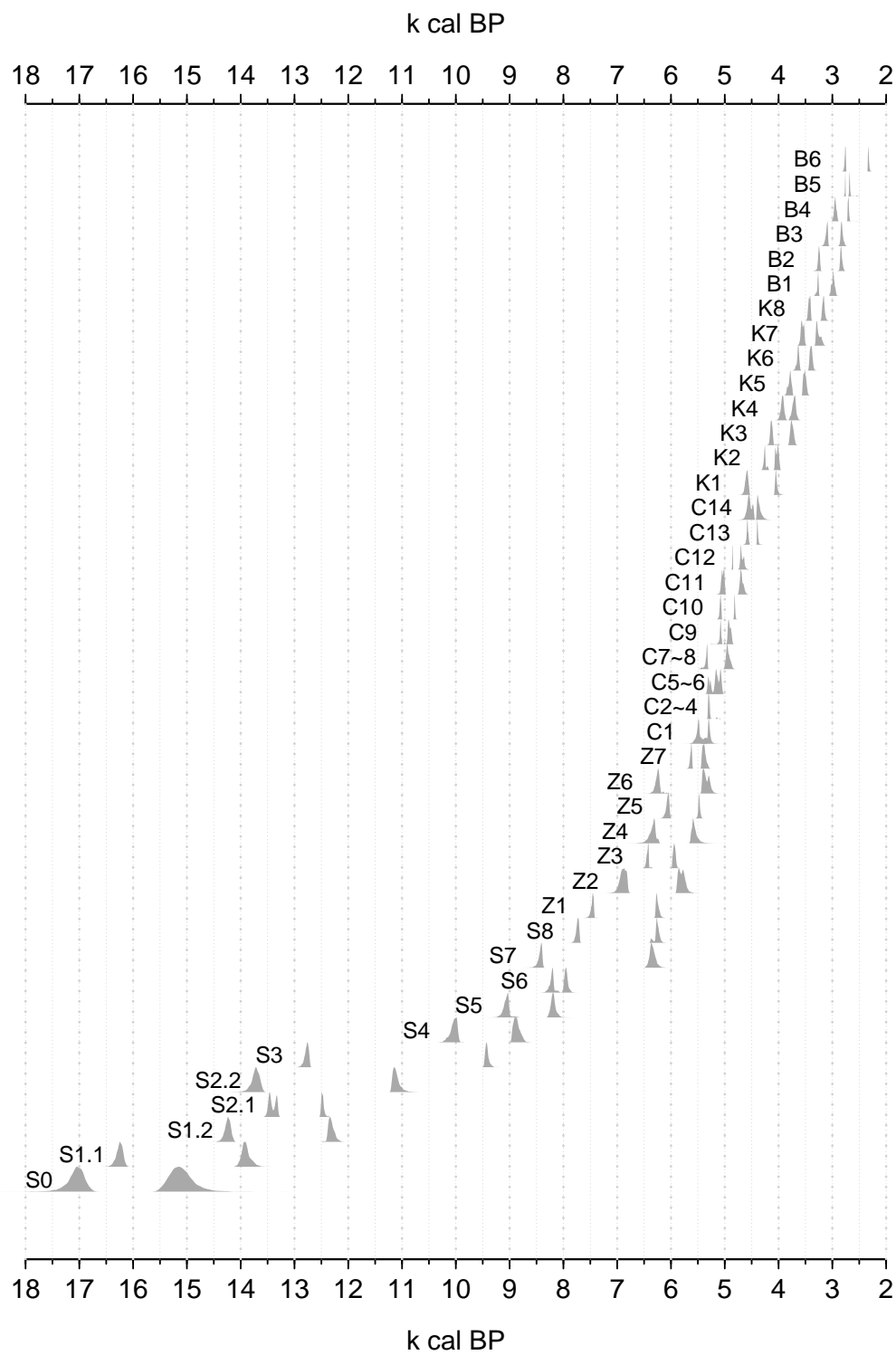
	N. of dates	N. of sites
Kanagawa	250	51
Tokyo	700	103
Saitama	302	51
Nagano	220	52
Yamanashi	78	26
TOTAL	1550	283

## Using different ceramic phase models

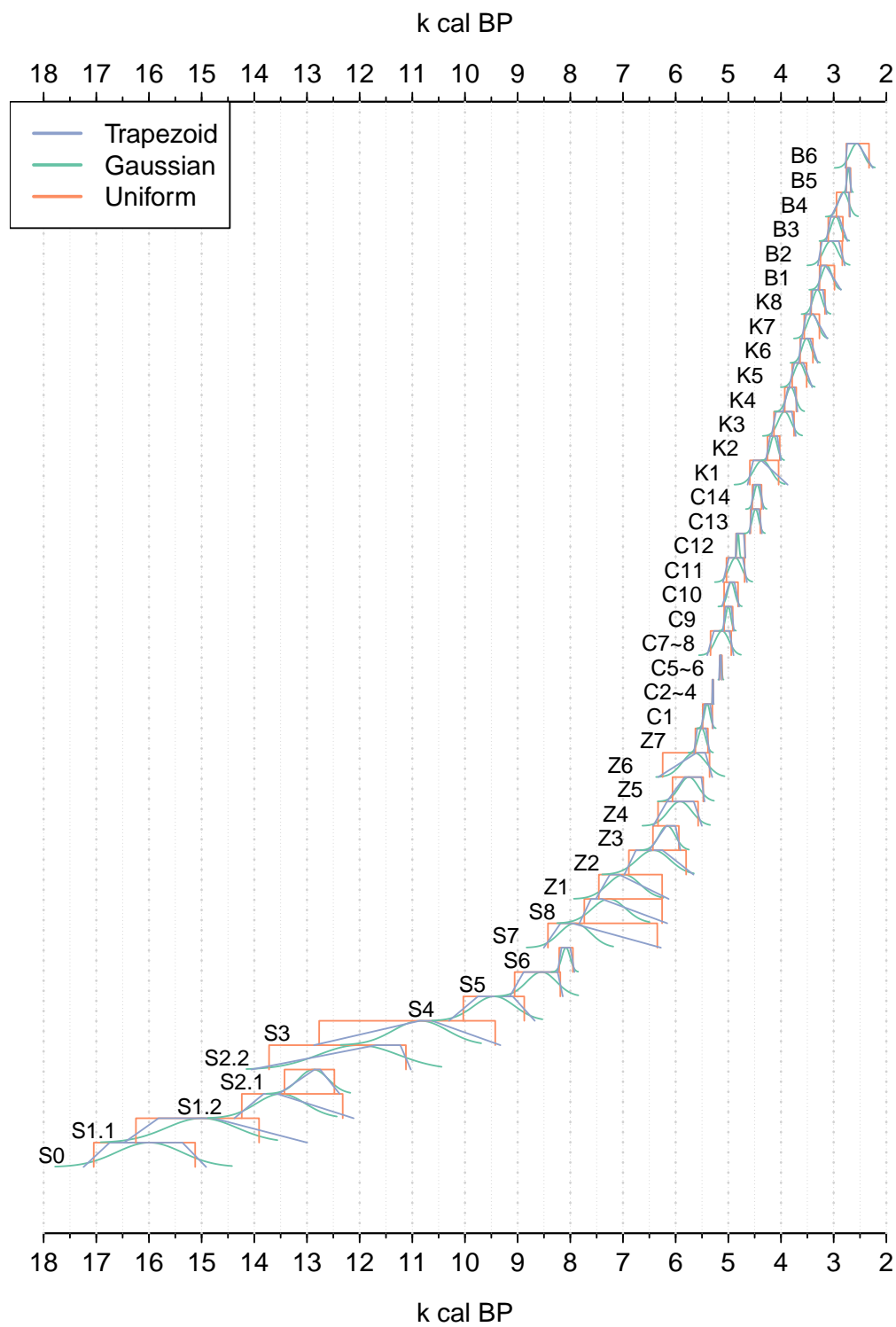
ESM Figure 1. Posterior Distribution of Gaussian Model



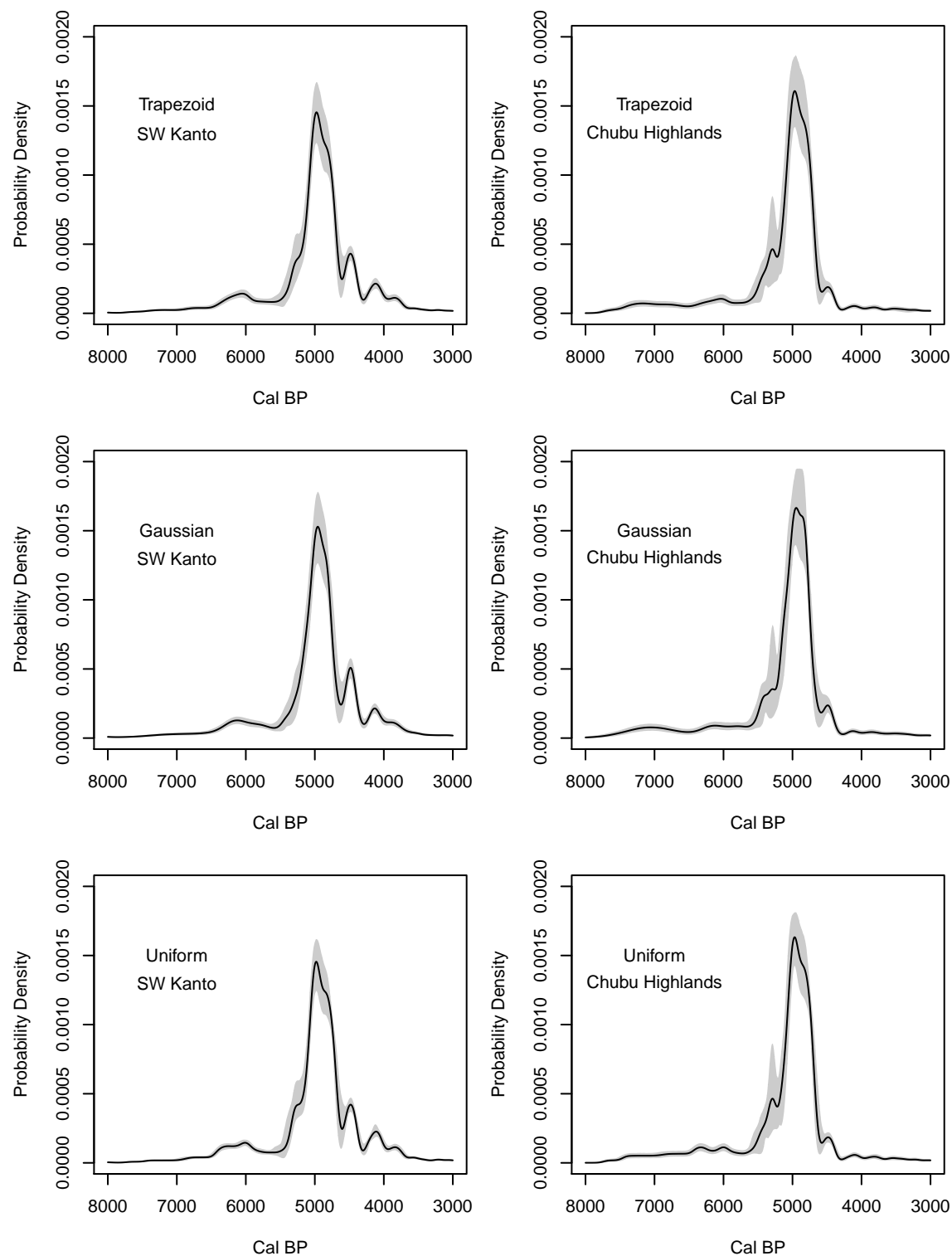
ESM Figure 2. Posterior Distribution of Uniform Model



ESM Figure 3. Comparison of Mean Posterior Parameters



ESM Figure 4. Comparison of pithouse KDE with ceramic phases based on Trapezoid, Gaussian, and Uniform Models



# SPD Analysis

ESM Figure 5: Bin-Sensitivity Analysis

