

## Appendix 1

These directories contain the images for all the CitcomS model runs:

- Dynamic topography
- Mantle temperature and viscosity profiles

The latitude of the cross-sections is included in the file names. These latitudes are for the rotated reference frame, that is, rotated 37.5 degrees north. Therefore in the on-rotated (true) reference frame:

- 9degN = 28.5°S
- 13degS = 50.5°S

Below are tables of all the model runs:

‘Reference Model’ series with subduction adjacent to reconstructed continental margin.

Model Name	Rayleigh Number	Radial Viscosities ( $\eta_L, \eta_{UM}, \eta_{TZ}, \eta_{LM}$ )	Initial Temp. Contrast	Slab Depth
RM*	$1.3576 \times 10^8$	100, 1, 5 50	0.5	~2000km
RM_1	$1.3576 \times 10^8$	100, <b>0.5</b> , 5 50	0.5	~2000km
RM_2	$1.3576 \times 10^8$	100, <b>0.25</b> , 5 50	0.5	~2000km
RM_3	$1.3576 \times 10^8$	100, 1, 5, <b>250</b>	0.5	~2000km
RM_4	<b><math>2.7146 \times 10^8</math></b>	100, 1, 5 50	0.5	~2000km
RM_5	<b><math>6.788 \times 10^7</math></b>	100, 1, 5 50	0.5	~2000km
RM_6	$1.3576 \times 10^8$	100, 1, 5 50	0.25	~2000km

\*‘Reference Model’

Model runs with subduction translated 23° east of reconstructed continental margin.

Model Name	Rayleigh Number	Radial Viscosities	Initial Temp. Contrast	Slab Depth
Slab23E_RM	$1.3576 \times 10^8$	100, 1, 5, 50	0.5	CMB*
Slab23E_1	$1.3576 \times 10^8$	100, <b>2</b> , <b>10</b> , <b>100</b>	0.5	CMB*
Slab23E_2	$1.3576 \times 10^8$	100, 1, <b>30</b> , <b>100</b>	0.5	CMB*
Slab23E_3	$1.3576 \times 10^8$	100, <b>2</b> , <b>50</b> , <b>100</b>	0.5	CMB*

\* Slab depth was extended to the core-mantle boundary (CMB) in the later series of model runs to reflect long-lived subduction between Eastern Gondwanaland and the palaeo-Pacific.