

Table S7. Modern climate data and future/Eocene model outputs

|                  | Jan. | Feb. | Mar. | Apr. | May  | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. | MART1 | MART2 | MART3 |
|------------------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Modern*          | -8.4 | -6.9 | -1.0 | 4.1  | 9.1  | 14.1 | 18.1 | 17.1 | 11.8 | 5.4  | -2.2 | -8.0 | 26.5  | 27.4  | 25.6  |
| RCP4.5 ensemble† | -5.0 | -3.3 | 1.6  | 6.4  | 12.2 | 16.5 | 20.4 | 19.9 | 14.4 | 7.3  | -0.1 | -4.6 | 25.4  | 26.6  | 24.2  |
| RCP8.5 ensemble† | -2.9 | -0.4 | 5.4  | 9.8  | 15.1 | 20.8 | 24.7 | 23.2 | 18.8 | 10.5 | 3.4  | -1.8 | 27.6  | 28.2  | 27.0  |
| Eocene LoCO§     | 4    | 6    | 8    | 13   | 15   | 20   | 24   | 23   | 18   | 11   | 8    | 5    | 20    | 22    | 18    |
| Eocene HiCO§     | 6    | 8    | 11   | 15   | 18   | 26   | 30   | 27   | 20   | 13   | 10   | 7    | 24    | 28    | 20    |

\* Average observed mean monthly temperature from NOAA 1981-2010 Climate Normals for stations in the GRB (n= 18; NCDC, 2010).

† Regional monthly mean temperature for downscaled area of GRB (40.5-43°N, 107-110.5°W) from 10-model ensemble (CMIP5) for future emissions scenarios (NCDMI, 2014).

§ Regional monthly mean temperature for area of GRB from RegCM3 configurations for low CO<sub>2</sub> (560 ppm) and high CO<sub>2</sub> (2240 ppm) scenarios (e.g., Thrasher and Sloan, 2009).

MART1 = WMMT-CMMT; MART2 = (WMMT-MAT)\*2; MART3 = (MAT-CMMT)\*2