Supplementary document for:

Present and future bright and dark spots for coral reefs through climate change

Shannon Sully[1], Gregor Hodgson[2,3], Robert van Woesik[1, *]

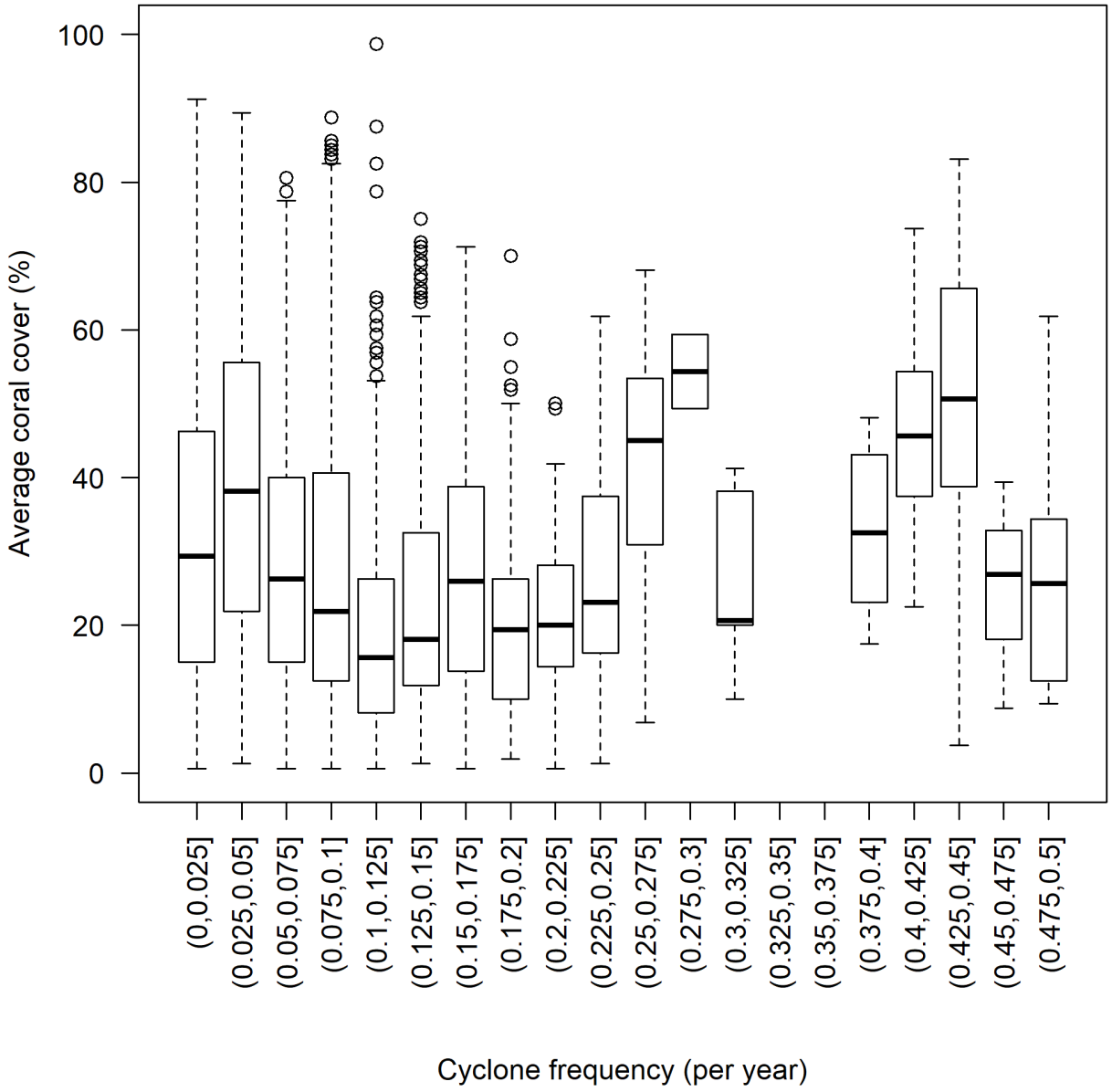

Figure S1. Mean percent coral cover frequency relative to cyclone frequency (per year) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the annual frequency of cyclones (which included both Pacific cyclones and Caribbean hurricanes) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

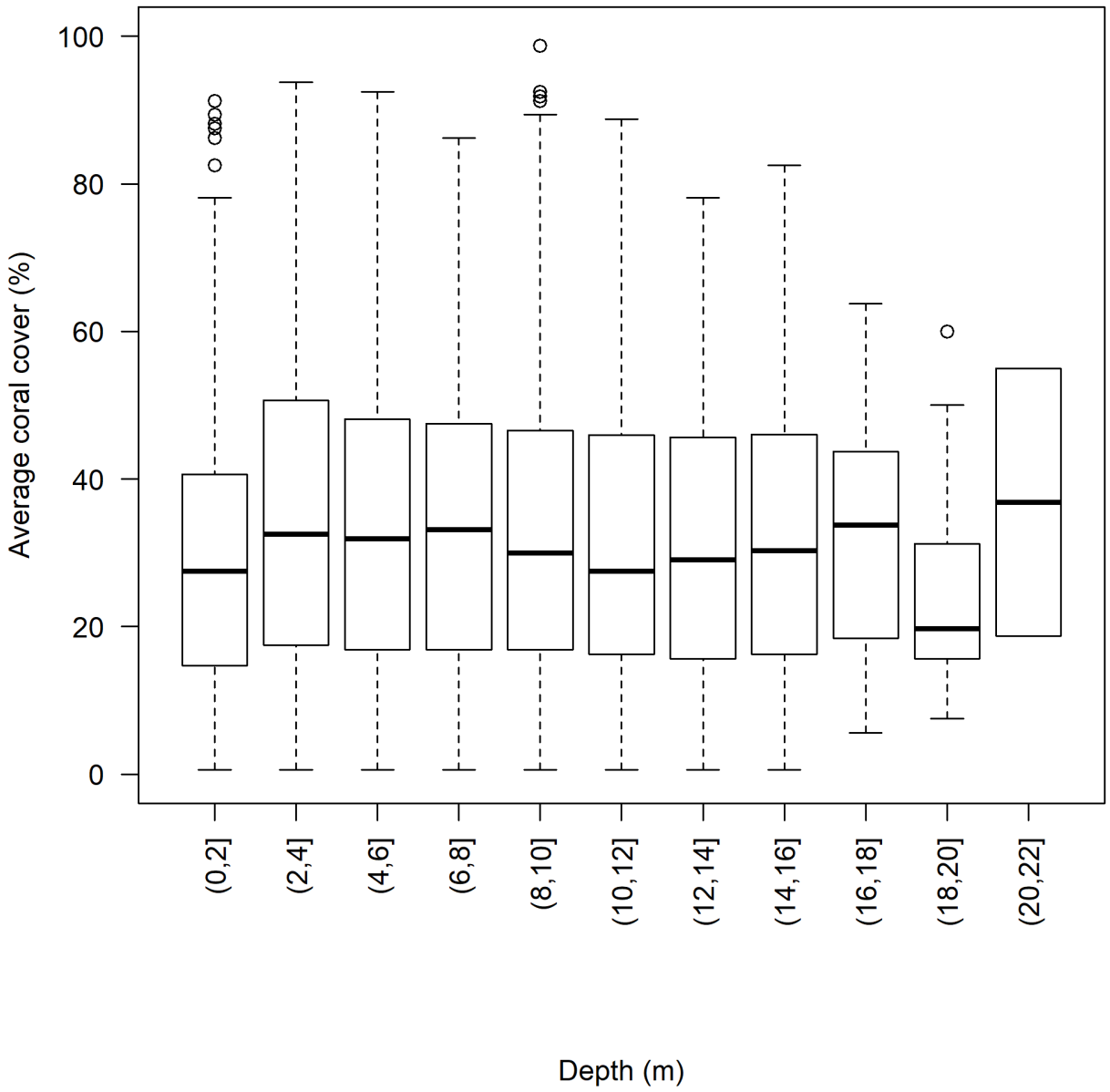

Figure S2. Mean percent coral cover frequency relative to reef depth (m) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the reef depth (m) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

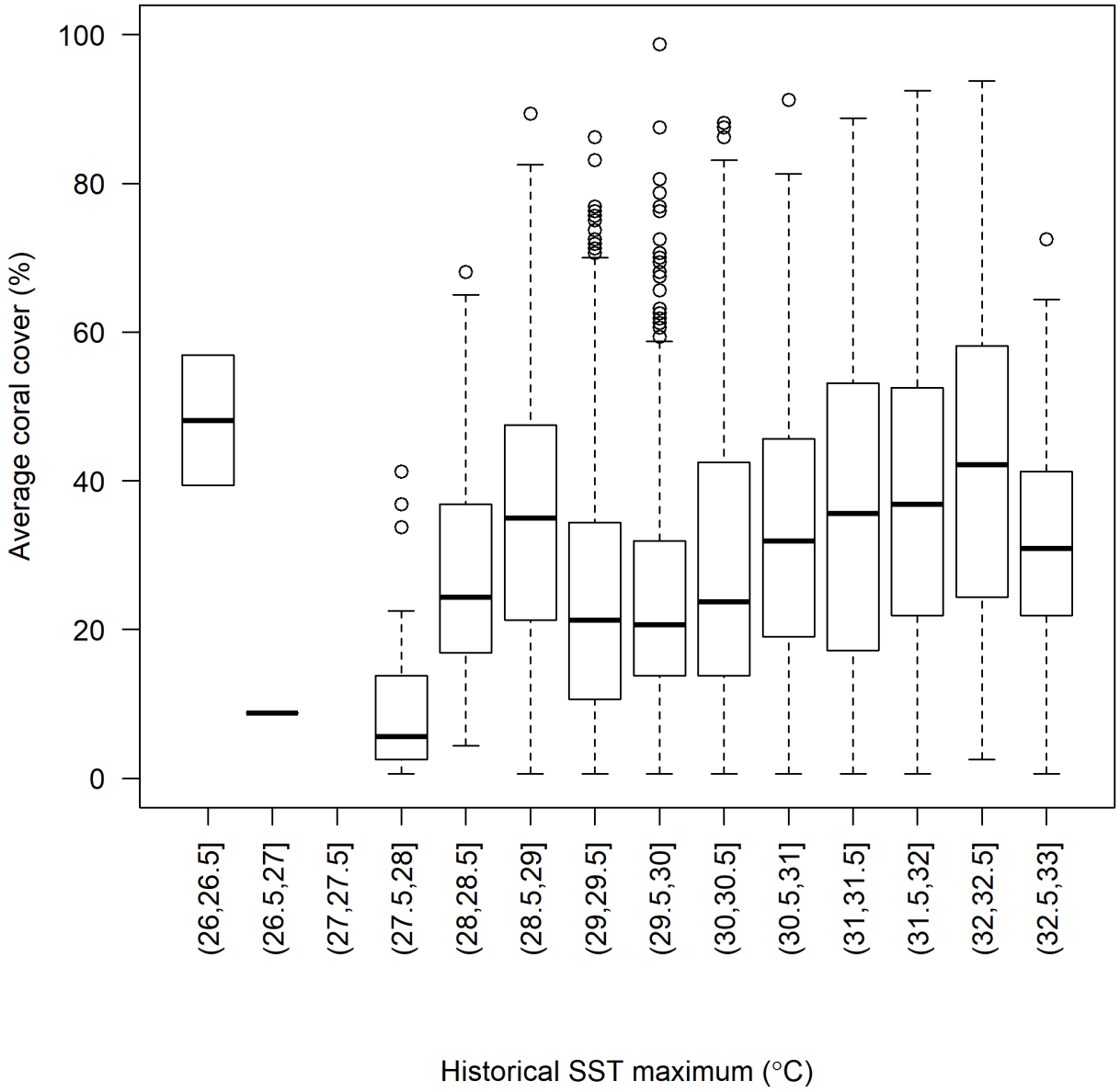

Figure S3. Mean percent coral cover frequency relative to historical sea-surface temperature (SST) maximum (°C) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the historical SST maximum (°C) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

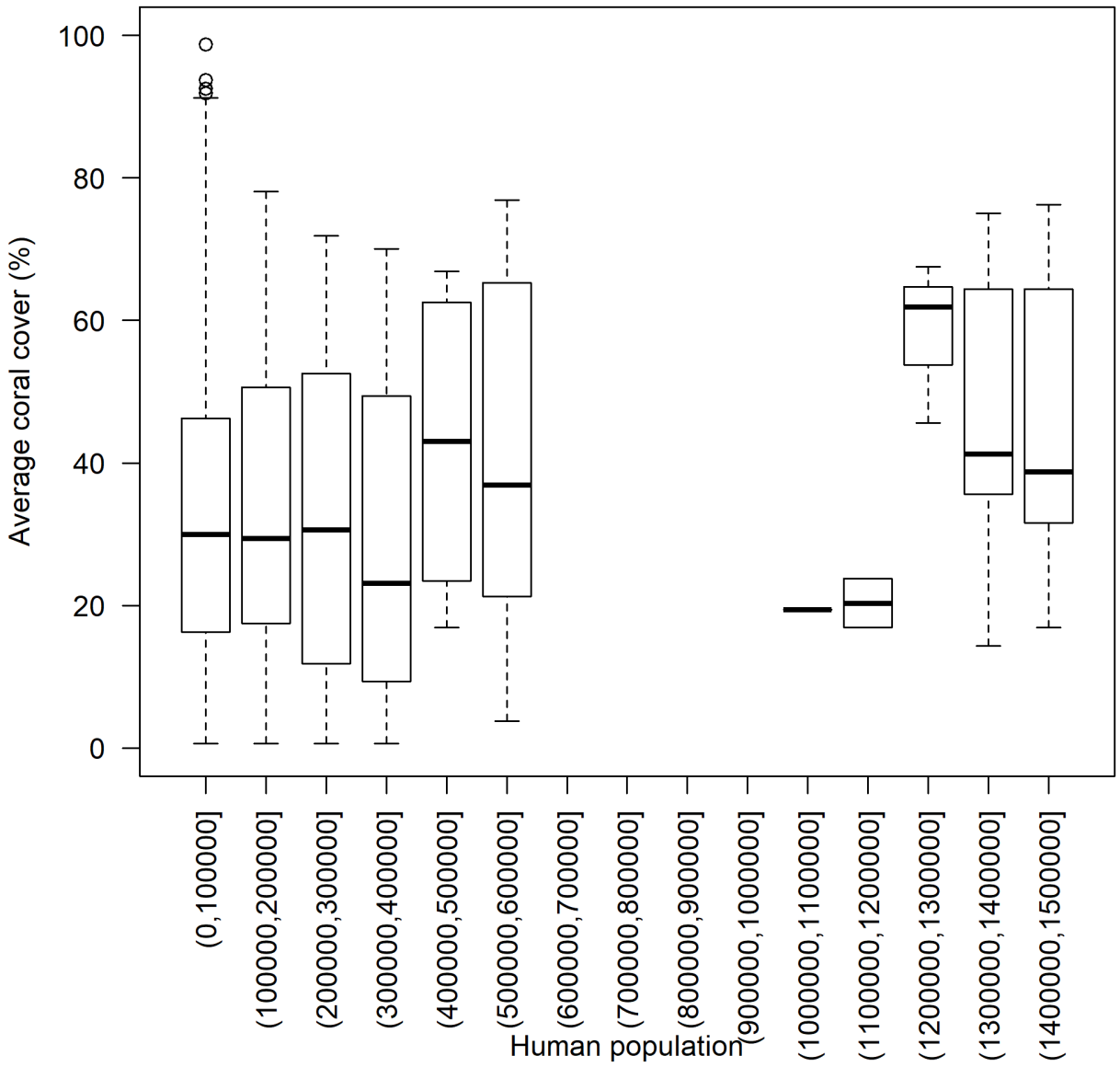

Figure S4. Mean percent coral cover frequency relative to human population near all the Reef Check surveys of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the maximum human population within a 10 km radius of each of the 7714 surveys for the year in which the survey occurred. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

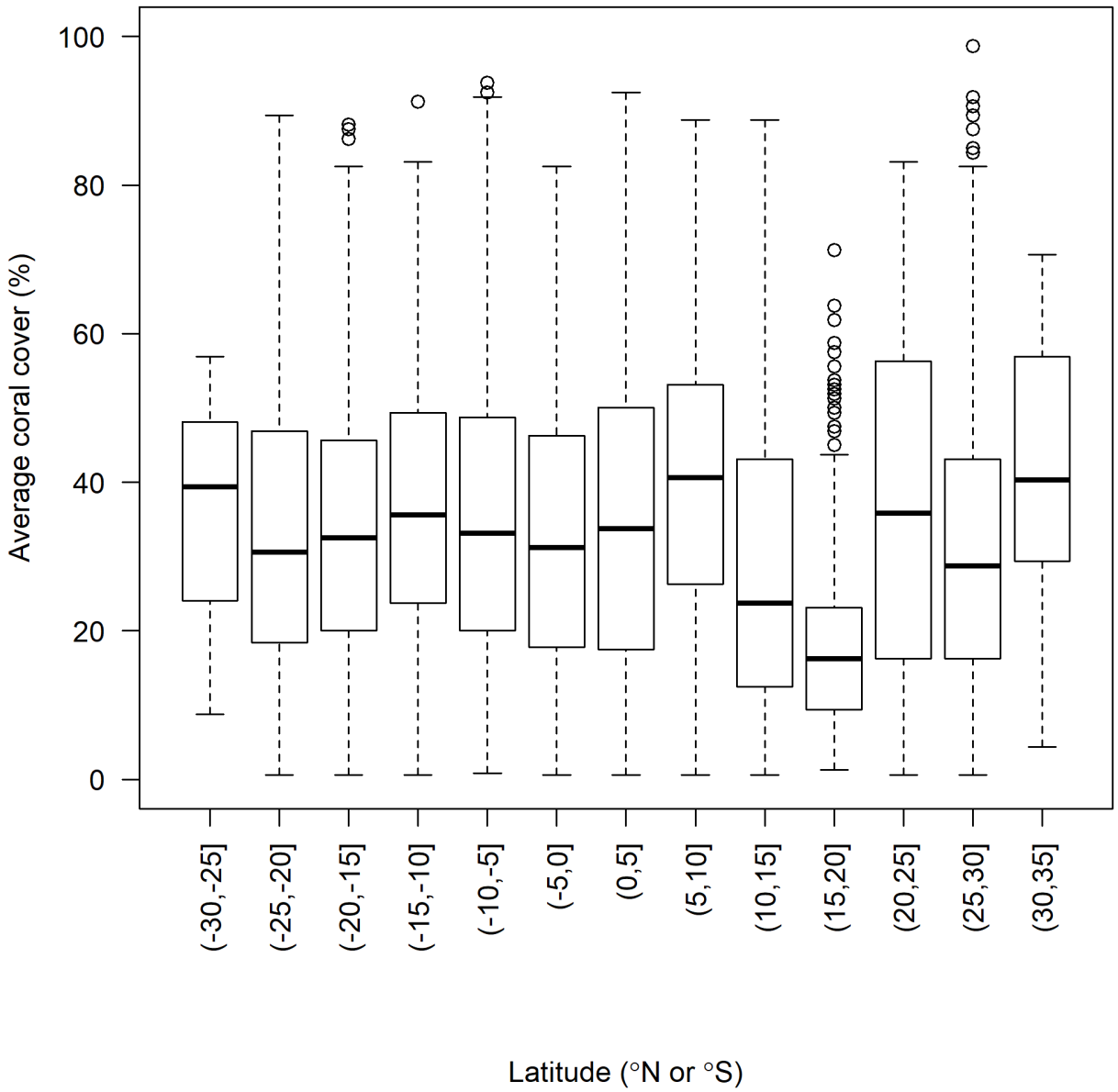

Figure S5. Mean percent coral cover frequency relative to latitude (°N or °S) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the latitude (°N or °S) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

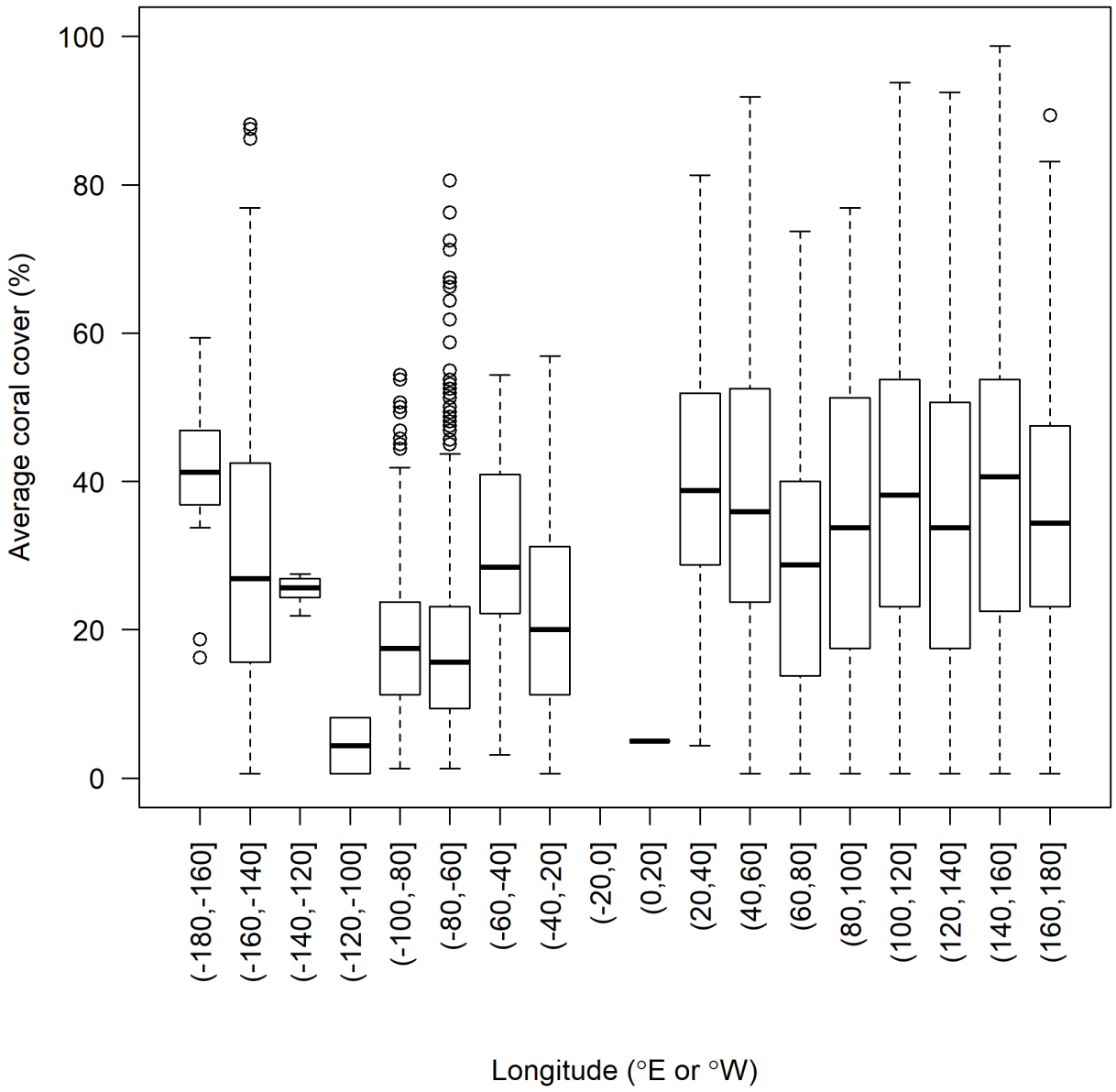

Figure S6. Mean percent coral cover frequency relative to longitude (°E or °W) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the longitude (°E is positive, °W is negative) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

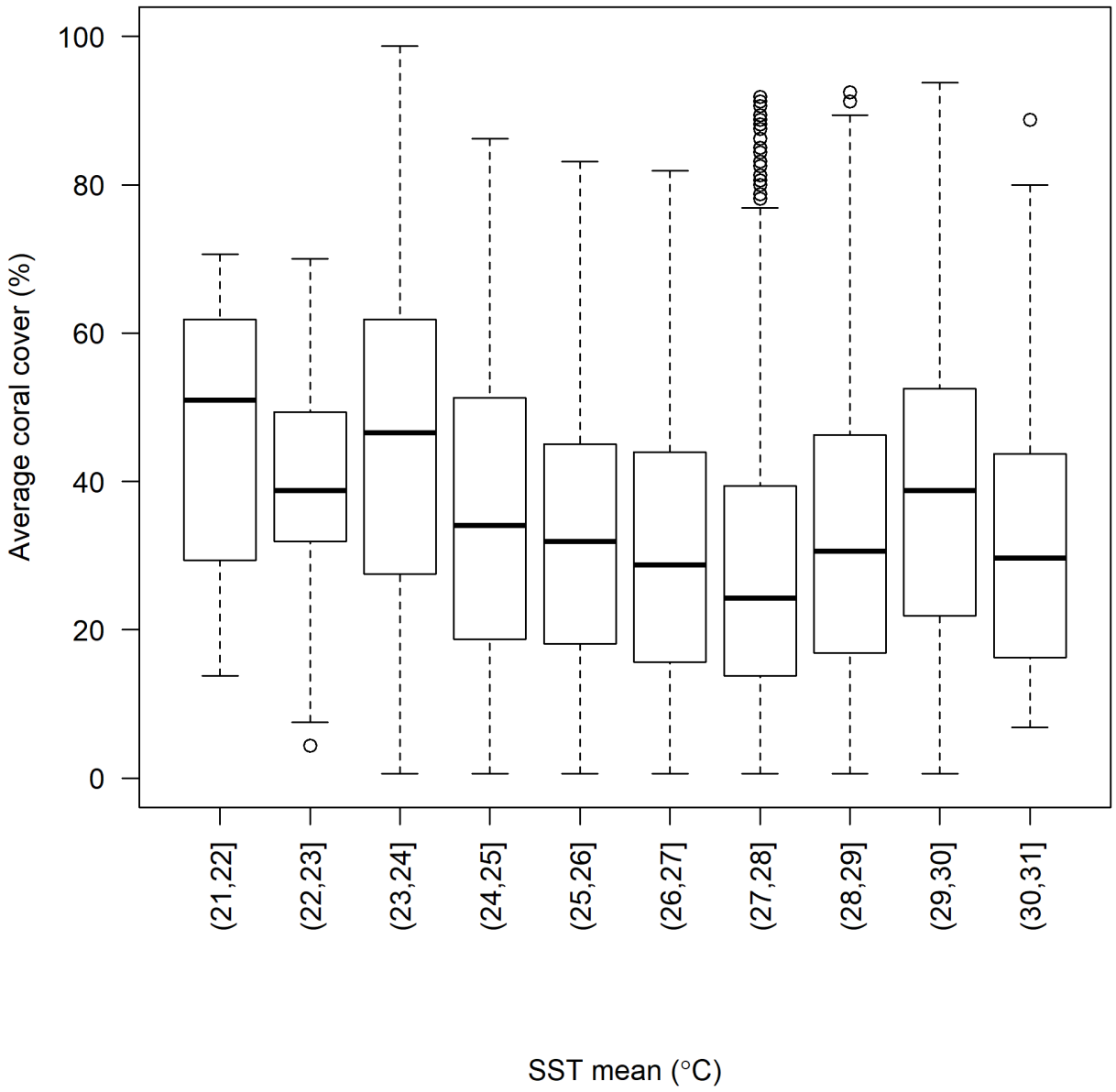

Figure S7. Mean percent coral cover frequency relative to SST mean (°C) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the SST mean (°C) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

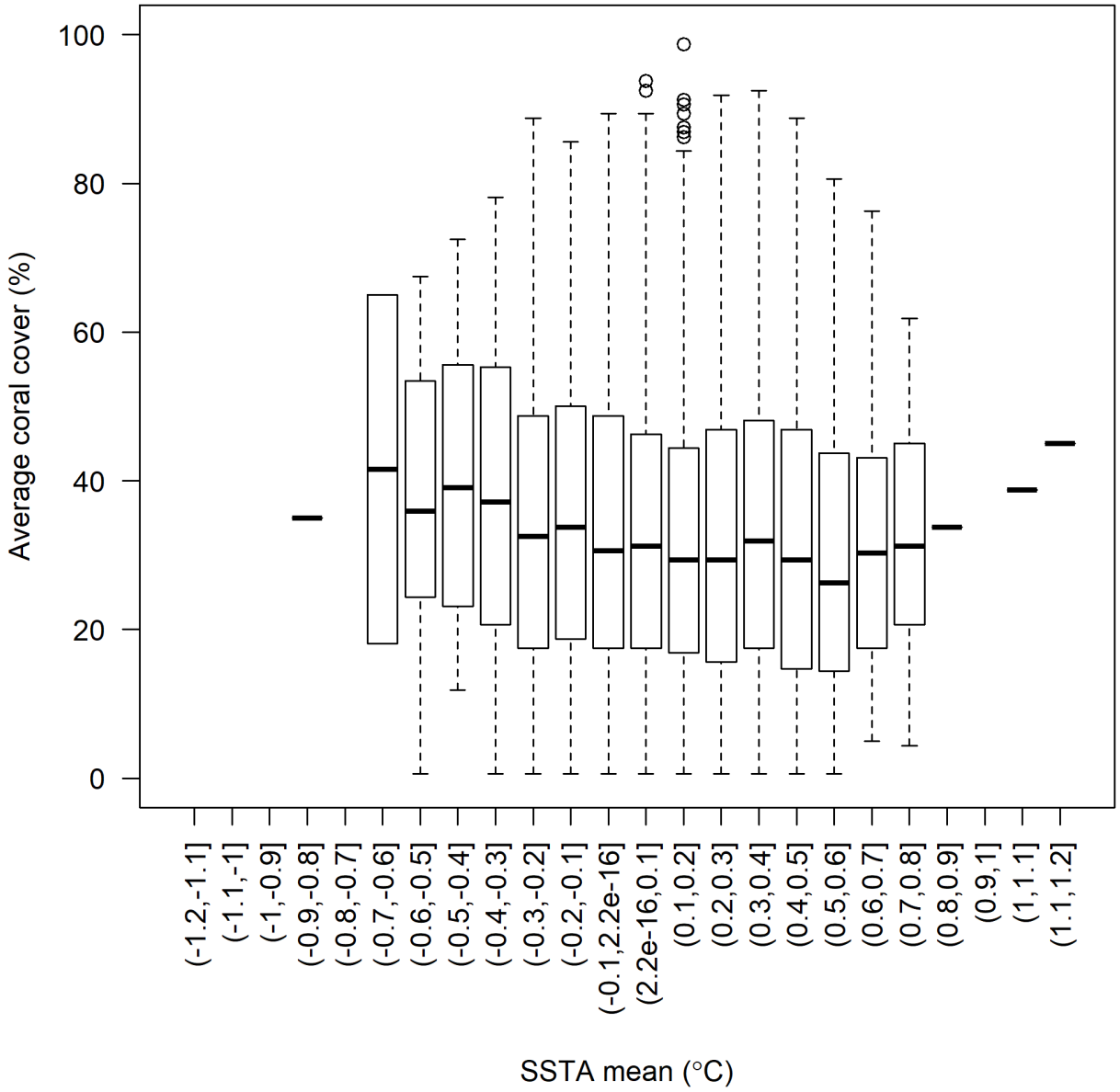

Figure S8. Mean percent coral cover frequency relative to the sea-surface temperature anomaly (SSTA) mean (°C) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the SSTA mean (°C) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

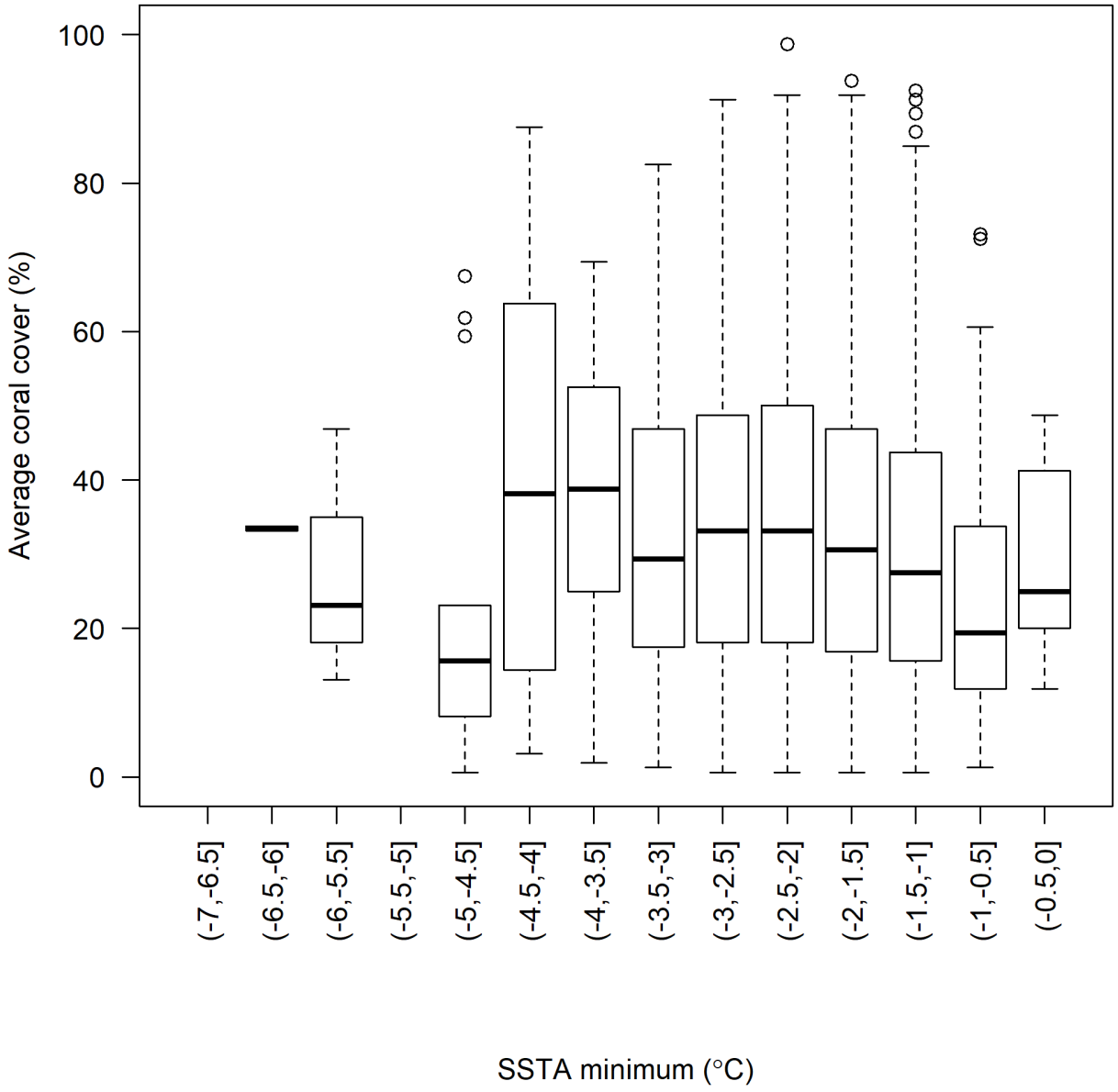

Figure S9. Mean percent coral cover frequency relative to the sea-surface temperature anomaly (SSTA) minimum (°C) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the SSTA minimum (°C) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

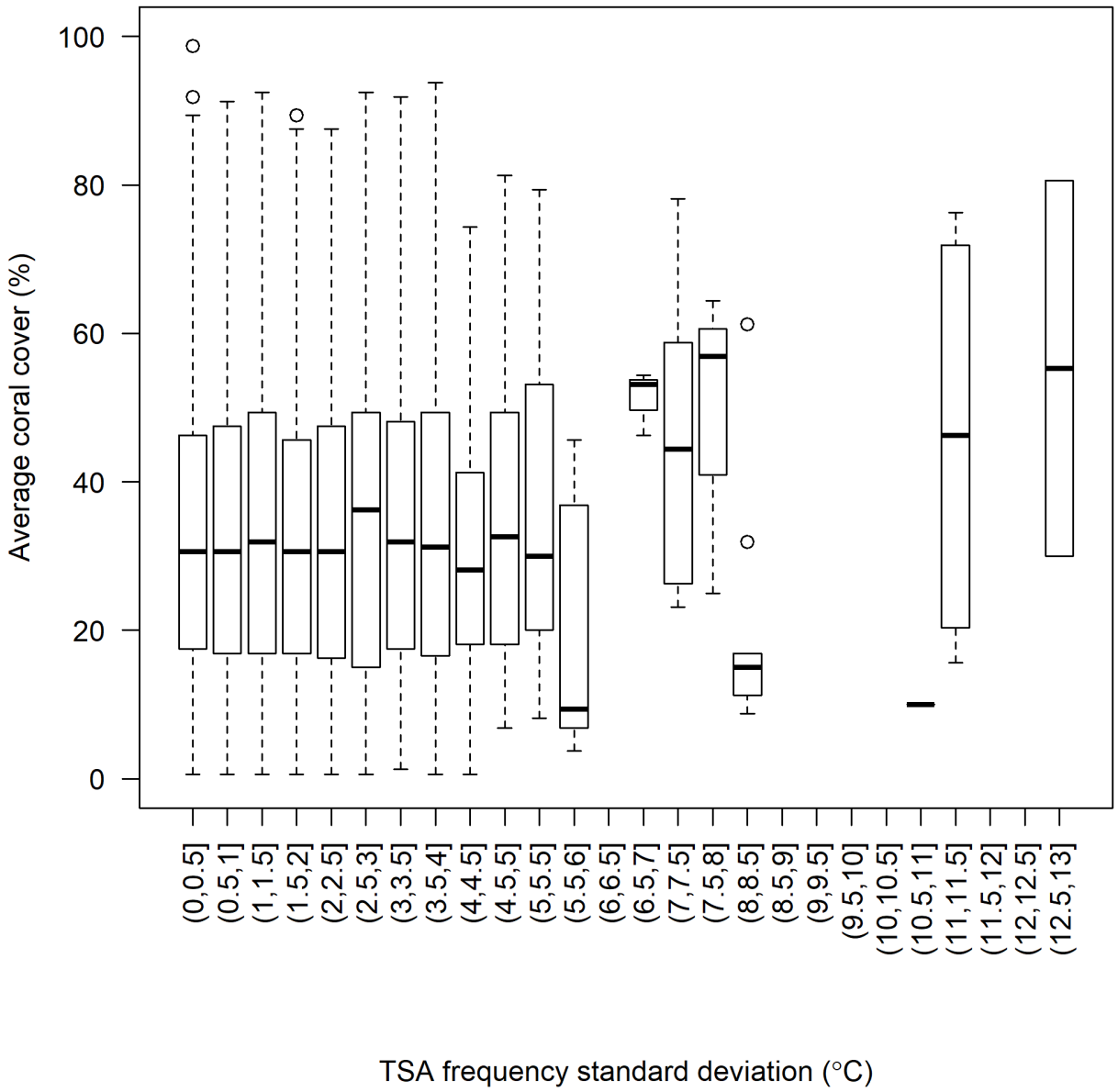

Figure S10. Mean percent coral cover frequency relative to the thermal stress anomaly (TSA) (°C) frequency standard deviation of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the TSA (°C) frequency standard deviation for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

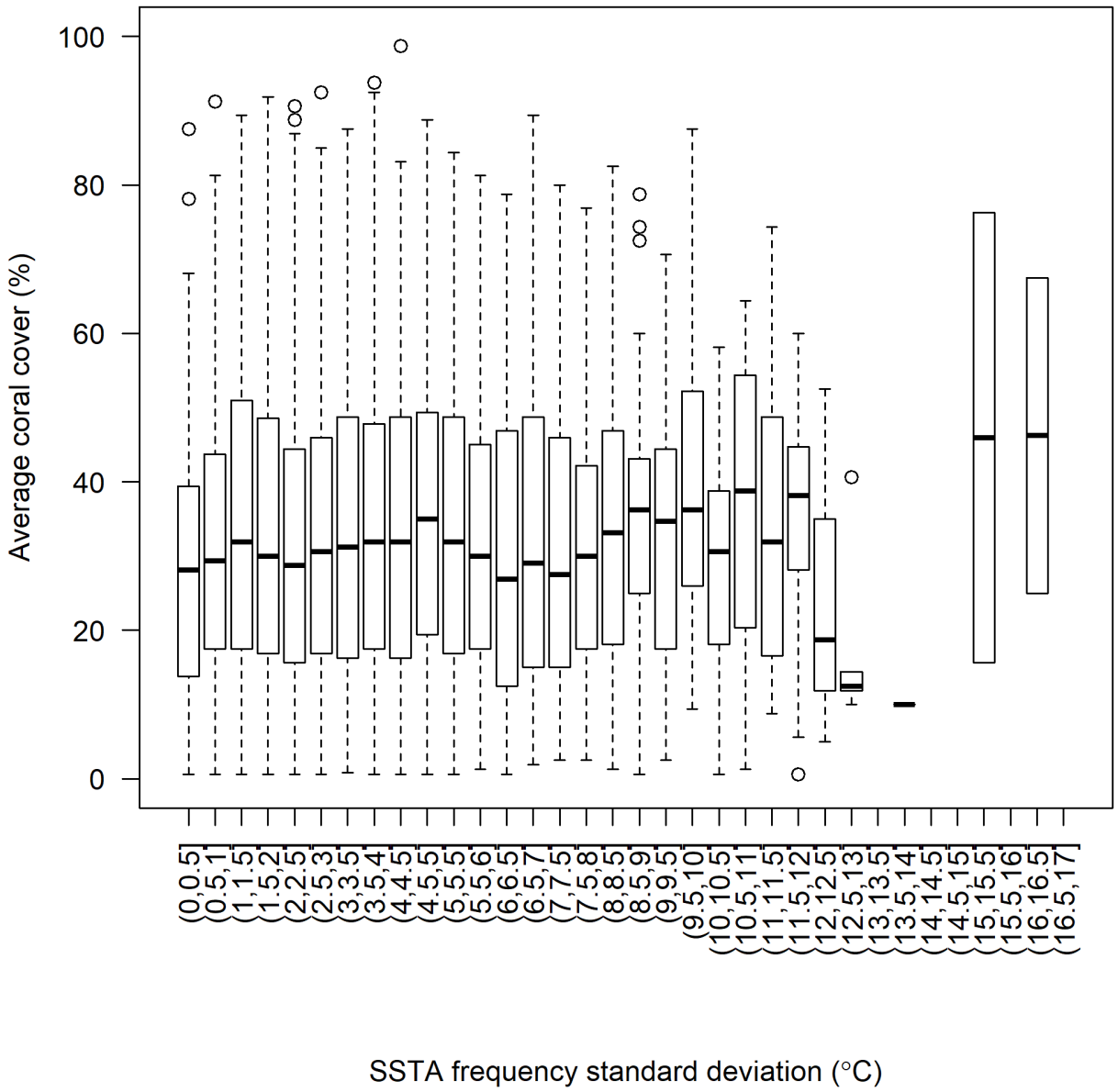

Figure S11. Mean percent coral cover frequency relative to the sea-surface temperature anomaly (SSTA) (°C) frequency standard deviation of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the SSTA (°C) frequency standard deviation for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

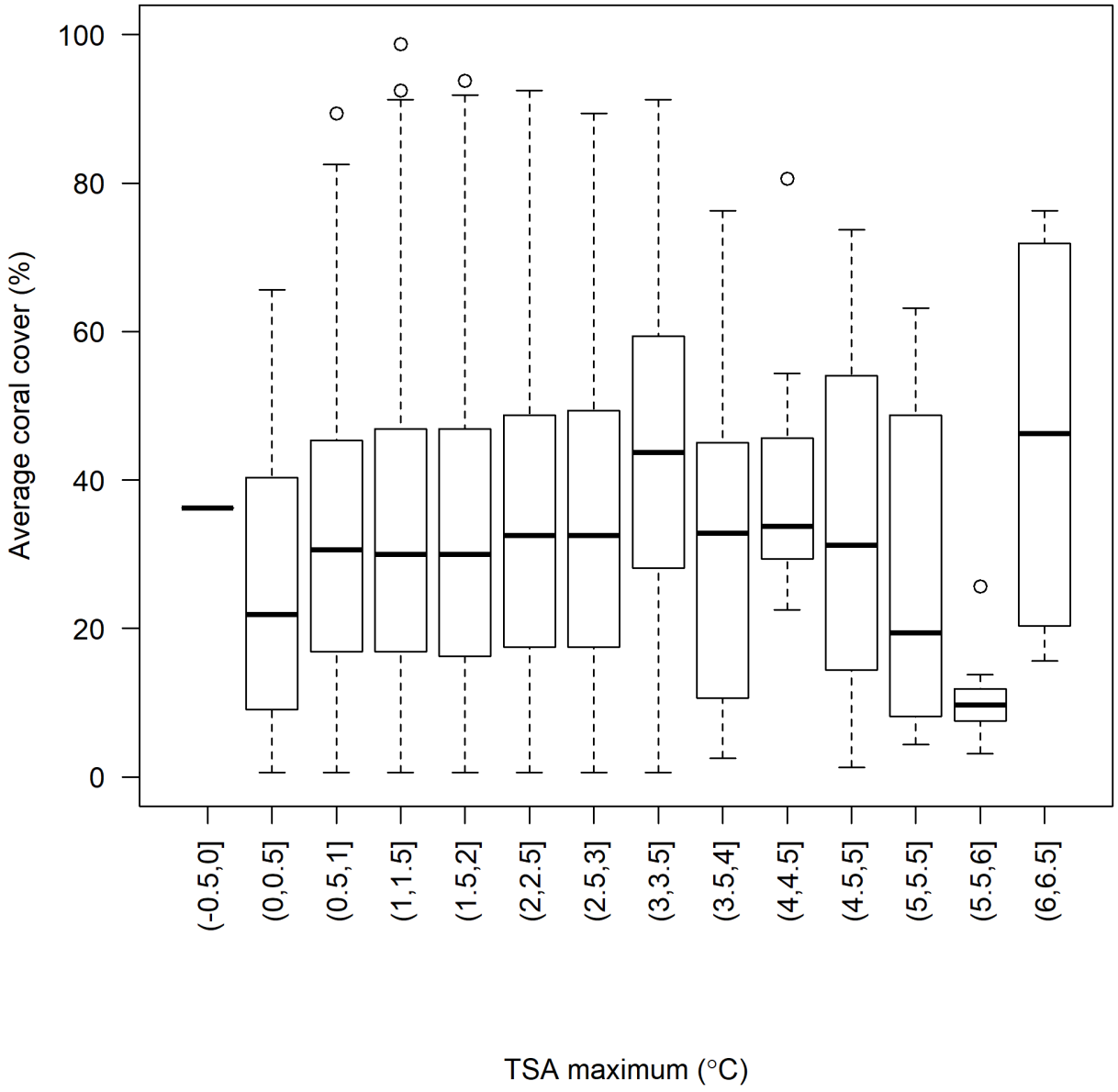

Figure S12. Mean percent coral cover frequency relative to thermal stress anomaly (TSA) maximum (°C) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the TSA maximum (°C) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

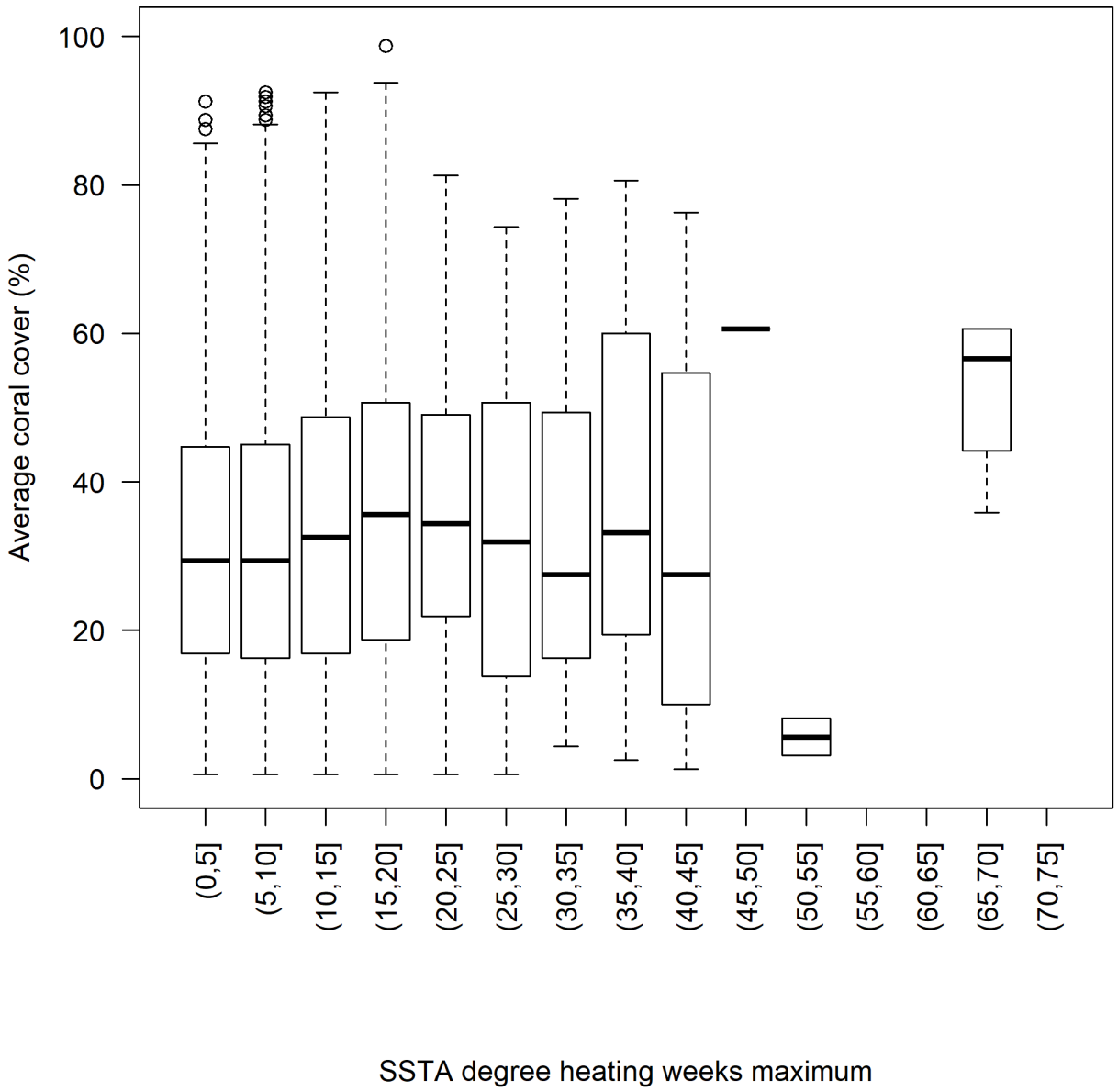

Figure S13. Mean percent coral cover frequency relative to sea-surface temperature anomaly (SSTA) degree heating weeks maximum (°C) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the SSTA degree heating weeks maximum (°C) for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

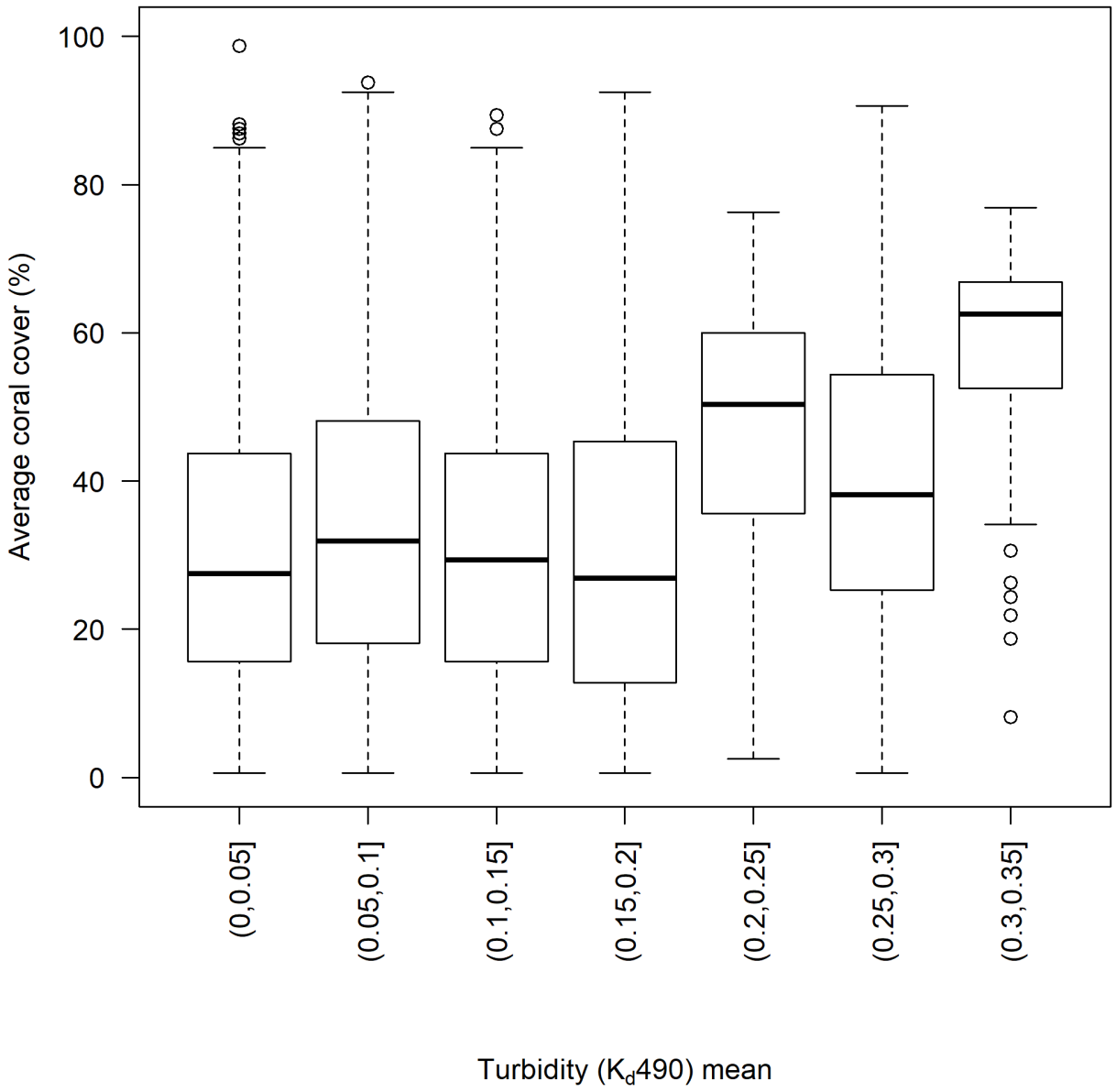

Figure S14. Mean percent coral cover frequency relative to turbidity mean (K_d490) of modern (1997–2018) coral reefs globally. The mean percent coral cover is reported relative to the turbidity for all 7714 surveys. The thick center line is the median value, the bounds of the box are the interquartile range (25% and 75%), the whiskers are the 95% range, and open circles are surveys falling outside the 95% range.

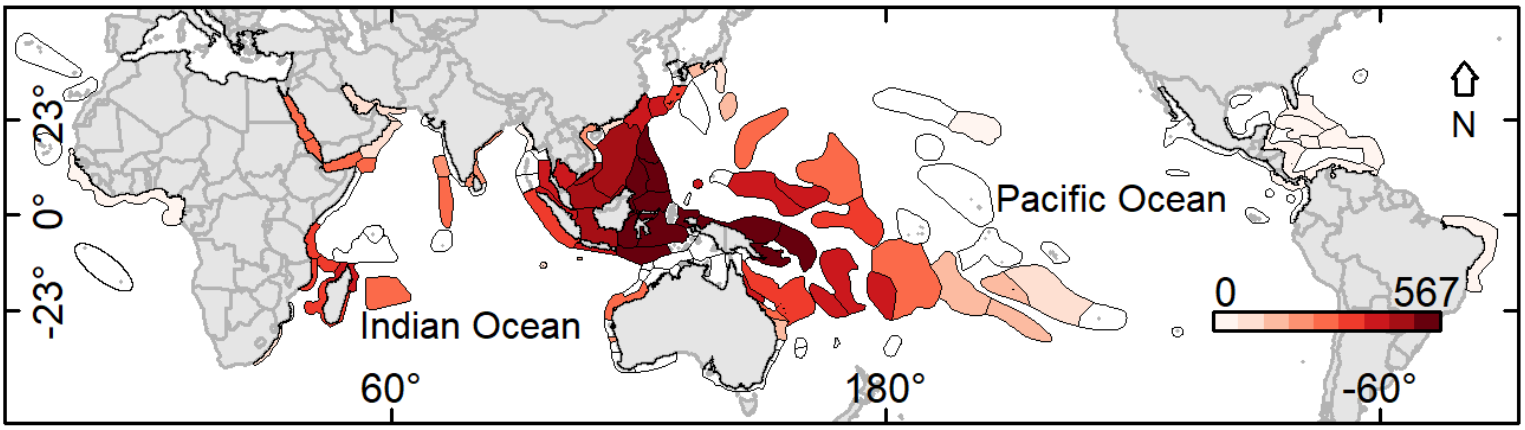

Figure S15. Coral diversity of modern (1997–2018) coral reefs globally. Diversity is displayed as the number of coral species confirmed present in the 7714 Reef Check surveys in each of 5 oceanic ecoregions (i.e., the Red Sea, Arabian Gulf, Indian Ocean, Pacific Ocean, or Atlantic Ocean), as determined by J. E. N. Veron (Veron 2015), ranging from 0 (white) to 567 (dark red).

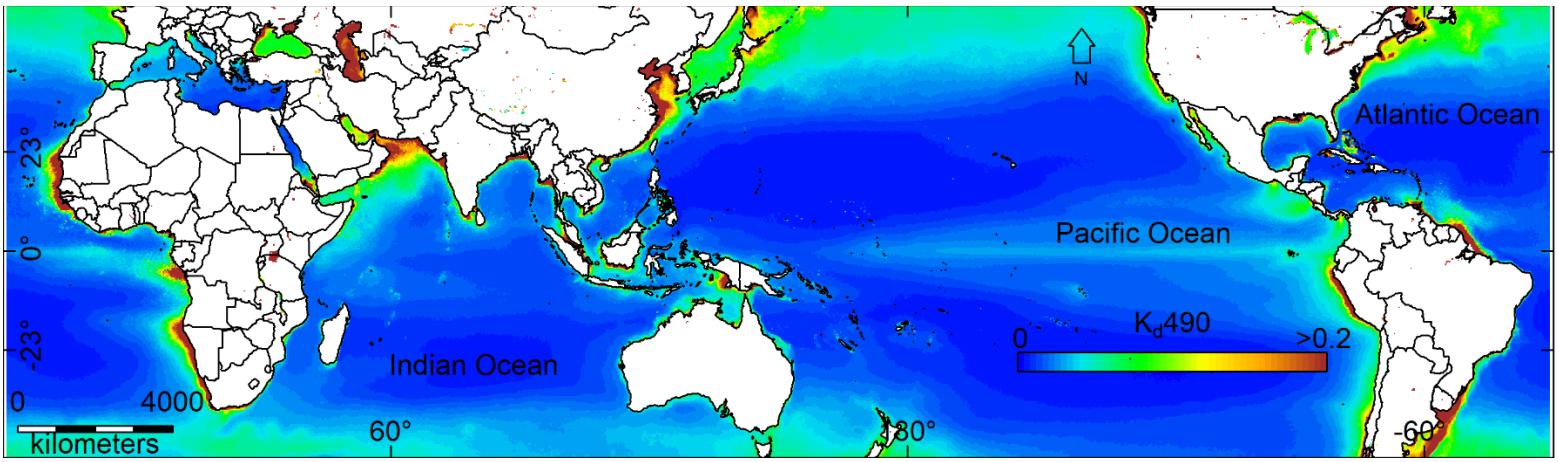

Figure S16. Turbidity mean (K_d490) values (2002–2017) of modern coral reefs globally. Turbidity mean (K_d490) values were calculated at a monthly 4 km resolution over 15 years from 2002 to 2017 from NASA, Goddard Space Flight Center, Ocean Ecology Laboratory, Ocean Biology Processing Group, SeaWiFS (Sea-viewing Wide Field-of-view Sensor) Ocean Color Data.

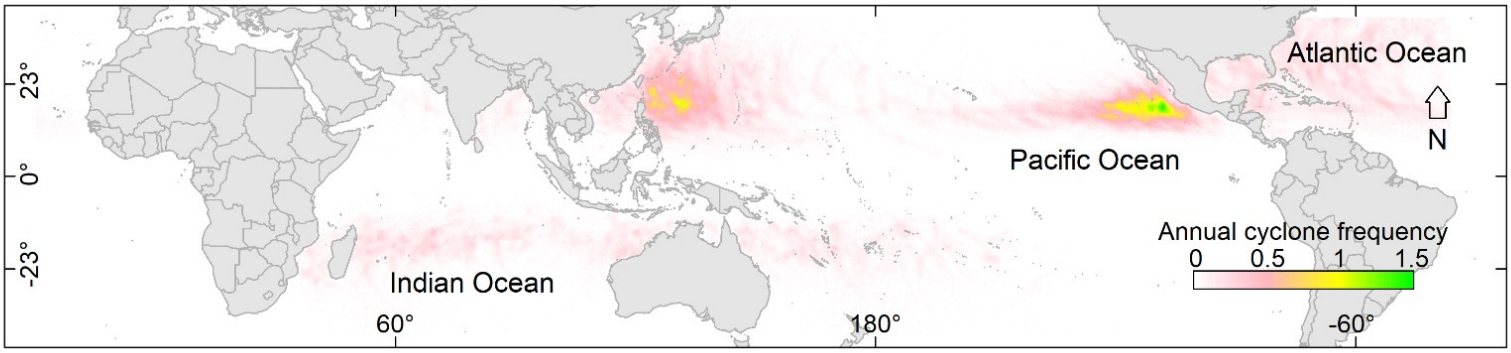

Figure S17. Annual cyclone frequency (1964–2014) of modern coral reefs globally. Annual cyclone frequency (which included Pacific cyclones and typhoons and Caribbean hurricanes) was calculated from data available from the International Best Track Archive for Climate Stewardship (IBTrACS) at a 9 km resolution over 50 years from 1964 to 2014.

Table S1. Ecological parameter and temperature metric descriptions and sources. Ecological parameters and temperature (°C) metrics used to predict percent coral cover across reefs worldwide. CoRTAD variables are from NOAA's Coral Reef Temperature Anomaly Database (www.ncei.noaa.gov/data/oceans/cortad/Version6/). All CoRTAD variables are provided on a grid cell basis, of approximately 4 km resolution. The study time frame for CoRTAD data was over 36 years from 1982 to 2018. Depth (m) and latitude (°N or °S) were recorded by SCUBA divers when each of the 7714 Reef Check surveys was conducted. Diversity data was provided by J.E.N. Veron.

Parameter	Metric Description	Metric Source
Cyclone	The mean annual cyclone (which included Pacific cyclones and typhoons and Caribbean hurricanes) frequency from 1964 to 2014 at a 9 km resolution.	A raster file was created based on data from International Best Track Archive for Climate Stewardship (IBTrACS; http://www.ncdc.noaa.gov/ibtracs/index.php?name=ibtracs-data).
Depth	Provided in meters.	Reef Check
DHW	Degree Heating Weeks (DHW) defined as 1 °C above the long-term average for the warmest month in a climatology.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
Diversity	The number of coral species confirmed present in an oceanic ecoregion.	J.E.N Veron (personal communication) and at www.coralsoftheworld.org/page/home/
Future mean SST for year 2050	The mean sea-surface temperature (SST) (°C) calculated at a monthly resolution from January 2047–December 2049 at a 4 km resolution.	van Hooidonk *et al.* (2016)
Future mean SST for year 2100	The mean sea-surface temperature (SST) (°C) calculated at a monthly resolution from January 2097–December 2099 at a 4 km resolution.	van Hooidonk *et al.* (2016)
Historical_SST_Max	The maximum (max) annual sea-surface temperature (SST) (°C) from the years 1870–1980, which were pre-recorded-bleaching years, at a 1° Latitude/Longitude resolution.	Calculated as the mean of the Historical_SST_Max from all 20 models of the Coupled Model Intercomparison Project version 6 (CMIP6) that are available at a 1° Latitude/Longitude resolution. Search criteria are listed in Table S2.
Historical_SST_Mean	The mean annual sea-surface temperature (SST) (°C) from the years 1870–1980, which were	Calculated as the mean of the Historical_SST_Mean from all 20 models of the Coupled Model

	pre-recorded-bleaching years, at a 1° Latitude/Longitude resolution.	Intercomparison Project version 6 (CMIP6) that are available at a 1° Latitude/Longitude resolution. Search criteria are listed in Table S2.
Historical_SST_sd	The standard deviation (sd) of monthly sea-surface temperature (SST) (°C) from the years 1870–1980, which were pre-recorded-bleaching years, at a 1° Latitude/Longitude resolution.	Calculated as the mean of the Historical_SST_sd from all 20 models of the Coupled Model Intercomparison Project version 6 (CMIP6) that are available at a 1° Latitude/Longitude resolution. Search criteria are listed in Table S2.
Human_pop	The sum of the human population (pop) within a 10 km radius of a reef site in the year of survey.	Calculated from SEDAC Gridded Population of the World, 2010 data at 30 arcsec (https://sedac.ciesin.columbia.edu/data/set/gpw-v4-population-count-rev11).
Latitude Degrees	The number of degrees north or south (absolute value) of the equator.	Reef Check
SST	Mean sea-surface temperature (SST) (°C) with a monthly resolution.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SST_Max	Maximum (max) sea-surface temperature (SST) (°C) value in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SST_Mean	The mean sea-surface temperature (SST) (°C) value in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SST_Min	The minimum (min) sea-surface temperature (SST) (°C) value in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SST_sd	The standard deviation (sd) of the sea-surface temperature (SST) (°C) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA	Sea-surface temperature anomaly (SSTA) (°C): weekly SST minus weekly climatological SST.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA DHW	Sea-surface temperature anomaly (SSTA) degree heating weeks (DHW): sum of previous 12 weeks to a survey when SSTA≥1 °C.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA DHW_Max	The maximum (max) sea-surface temperature anomaly (SSTA)	www.ncei.noaa.gov/data/oceans/cortad/Version6/

	degree heating weeks (DHW) in the three years prior to a survey.	
SSTA DHW_Mean	The mean sea-surface temperature anomaly (SSTA) degree heating weeks (DHW) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA DHW_sd	The standard deviation (sd) of sea-surface temperature anomaly (SSTA) degree heating weeks (DHW) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA_Freq	The frequency (freq) of sea-surface temperature anomaly (SSTA): number of times over the previous 52 weeks that SSTA ≥ 1 °C.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA_Freq_Max	The maximum (max) sea-surface temperature anomaly (SSTA) frequency (freq) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA_Freq_Mean	The mean sea-surface temperature anomaly (SSTA) frequency (freq) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA_Freq_sd	The standard deviation (sd) of sea-surface temperature anomaly (SSTA) frequency (freq) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA_Max	The maximum (max) sea-surface temperature anomaly (SSTA) (°C) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA_Min	The minimum (min) sea-surface temperature anomaly (SSTA) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
SSTA_sd	The standard deviation (sd) of weekly sea-surface temperature anomalies (SSTA) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA	Thermal stress anomaly (TSA): sea-surface temperature (SST) (°C) minus the maximum of weekly climatological SST.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_DHW	Thermal stress anomaly (TSA) degree heating weeks (DHW): Sum of previous 12 weeks when TSA ≥ 1 °C.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_DHW_Max	The maximum (max) thermal stress anomaly (TSA) degree heating weeks (DHW) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_DHW_Mean	The mean thermal stress anomaly (TSA) degree heating weeks	www.ncei.noaa.gov/data/oceans/cortad/Version6/

	(DHW) in the three years prior to a survey.	
TSA_DHW_sd	The standard deviation(sd) of thermal stress anomaly (TSA) degree heating weeks (DHW) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_Freq	Thermal stress anomaly (TSA) frequency (freq): number of times over previous 52 weeks that TSA ≥1 °C.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_Freq_sd	The standard deviation (sd) of frequency (freq) of thermal stress anomalies (TSA) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_Freq_Max	The maximum (max) thermal stress anomaly (TSA) frequency (freq) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_Freq_Mean	The mean TSA_Frequency in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_Max	The maximum (max) thermal stress anomaly (TSA) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_Mean	The mean thermal stress anomaly (TSA) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_Min	The minimum (min) thermal stress anomaly (TSA) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
TSA_sd	The standard deviation (sd) of thermal stress anomaly (TSA) in the three years prior to a survey.	www.ncei.noaa.gov/data/oceans/cortad/Version6/
Turbidity_Max	Maximum (max) turbidity (K_d490): the diffuse attenuation coefficient of light at the 490 nm wavelength, at a 4 km resolution calculated from 2002–2017 with a time unit of 1 month.	https://oceandata.sci.gsfc.nasa.gov/MODIS-Aqua/Mapped/Monthly/4km/Kd_490/
Turbidity_Mean	Mean turbidity (K_d490): the diffuse attenuation coefficient of light at the 490 nm wavelength, at a 4 km resolution calculated from 2002–2017 with a time unit of 1 month.	https://oceandata.sci.gsfc.nasa.gov/MODIS-Aqua/Mapped/Monthly/4km/Kd_490/
Turbidity_Min	Minimum (min) turbidity (K_d490): the diffuse attenuation coefficient of light at the 490 nm wavelength, at a 4 km resolution calculated from 2002–2017 with a time unit of 1 month.	https://oceandata.sci.gsfc.nasa.gov/MODIS-Aqua/Mapped/Monthly/4km/Kd_490/

Table S2. Search criteria for accessing historical sea-surface temperature (SST) (°C).
Search criteria for accessing historical SST data from https://esgf-node.llnl.gov/search/cmip6/

Search Criteria
Activity: CMIP
Nominal Resolution: 1x1 degree
Grid Label: gr
Experiment ID: historical
Frequency: mon
Variable: tos

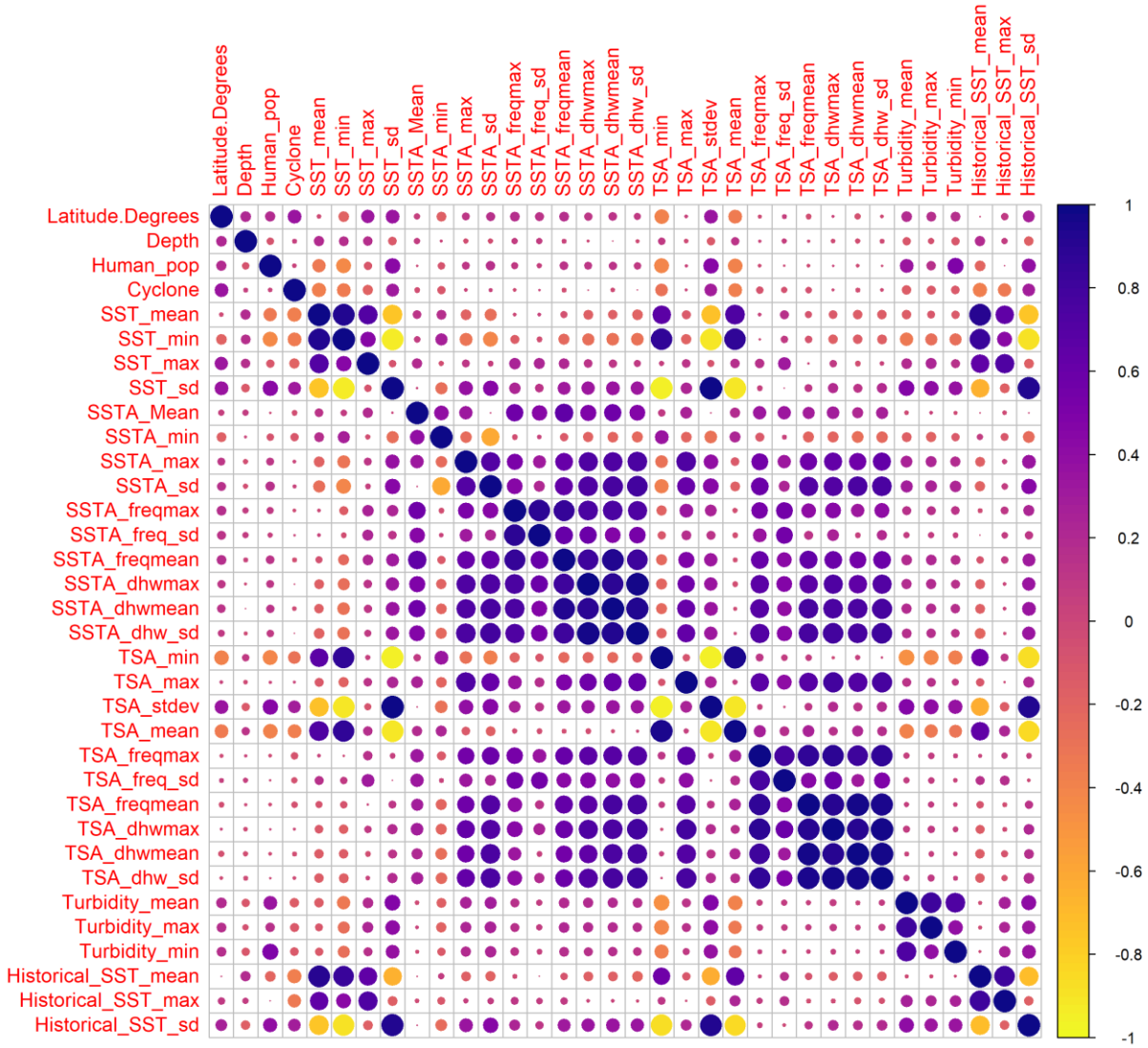

Figure S18. Pearson's correlation coefficients for ecological parameter and sea-surface temperature (SST) (°C) metric descriptions and sources. Ecological parameters and temperature metrics used to predict percent coral cover across reefs worldwide. Parameters and their data sources are listed in Table S1. The Pearson's coefficients of correlation were carefully considered and any parameters here that had a correlation coefficient with an absolute value of 0.7 or greater were removed before analysis was performed.

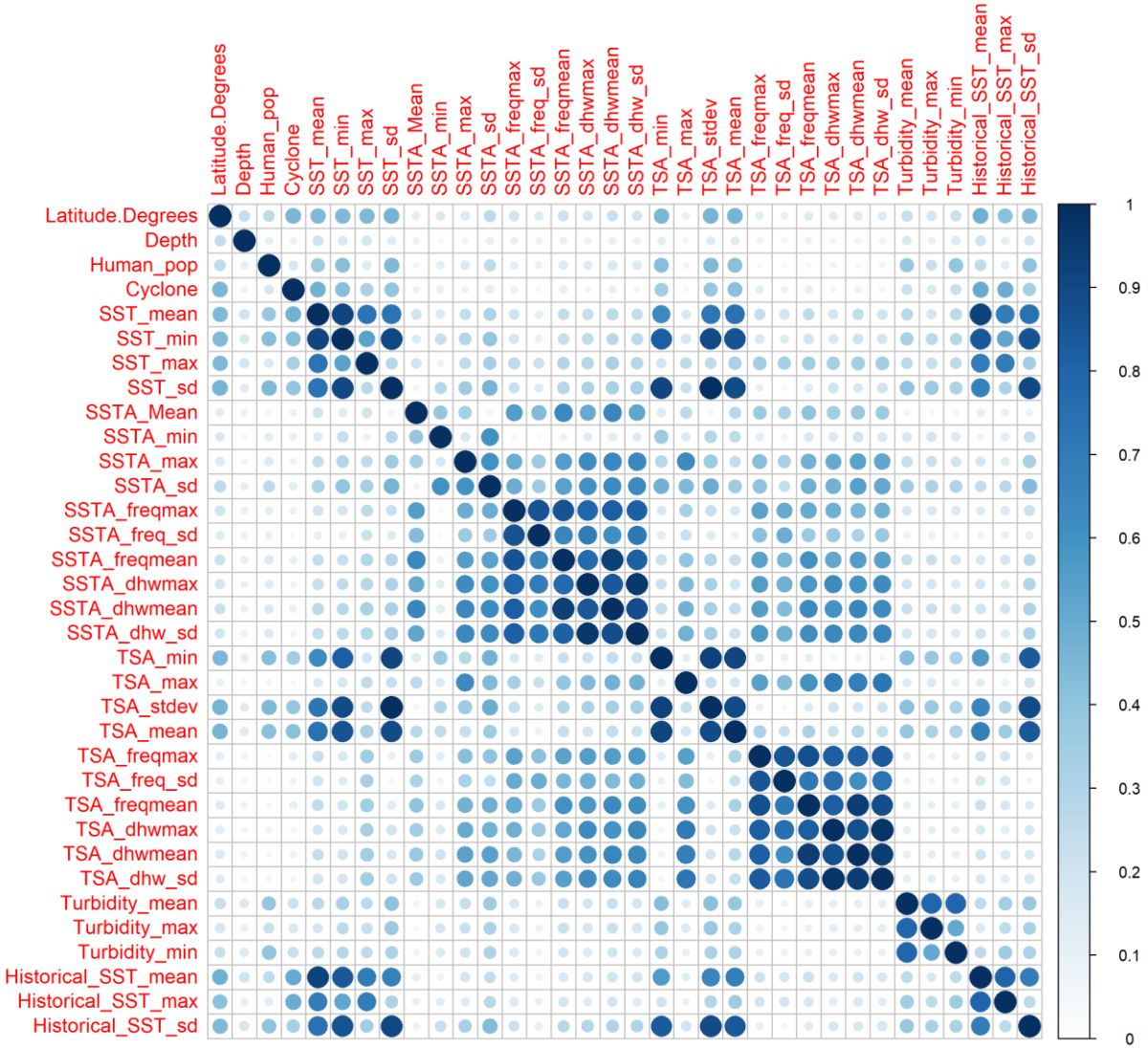

Figure S19. Brownian distance correlation coefficients for ecological parameter and sea-surface temperature (SST) (°C) metric descriptions and sources. Ecological parameters and temperature metrics used to predict percent coral cover across reefs worldwide. Parameters and their data sources are listed in Table S1. The distance coefficients of correlation were carefully considered and any parameters here that had a correlation coefficient with an absolute value of 0.7 or greater were removed before analysis was performed.

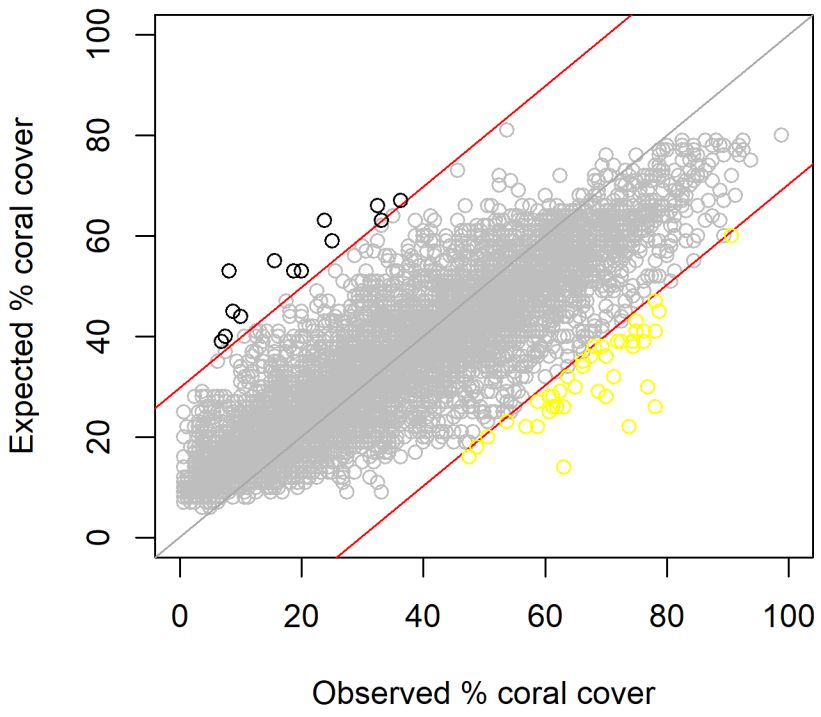

Figure S20. Present-day observed and expected percent coral cover. The observed mean percent coral cover versus the expected mean percent coral cover as determined from the fitted beta model. Gray circles indicate sites for which the observed mean percent coral cover was within 1.5 standard deviations (30%) of expected mean coral cover. Yellow circles indicate bright spots — sites for which the observed mean percent coral cover was at least 1.5 standard deviations greater than the expected mean percent coral cover. Black circles indicate dark spots — sites for which the observed mean percent coral cover was 1.5 standard deviations less than the expected mean percent coral cover. The gray line indicates y=x. Red lines indicate differences of 1.5 standard deviations from the line y=x. The r-squared value is 0.80.

Future Percent Coral Cover Projections

To project future percent coral cover globally, we substituted future mean sea-surface temperature (SST) (°C) values for present-day mean SST values in the beta model and future human population values for present-day human population values.

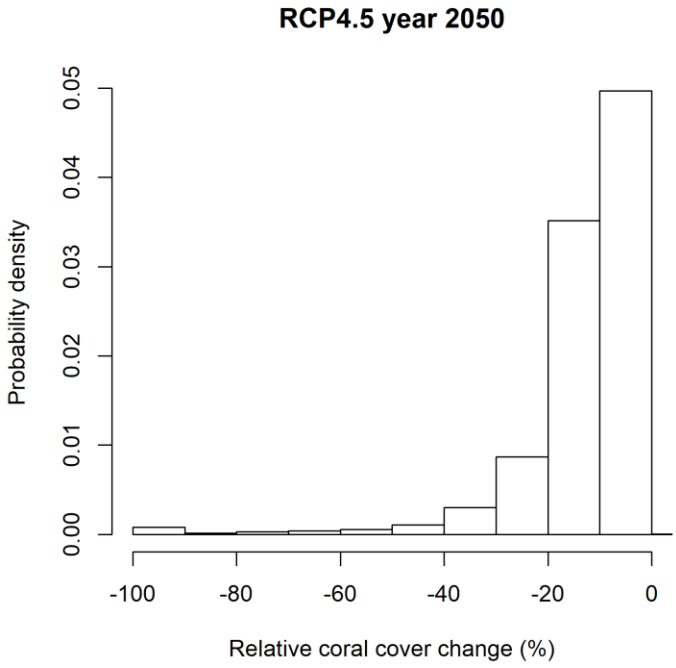

Figure S21. Relative change in percent coral cover globally in 2050 under climate change scenario RCP4.5.

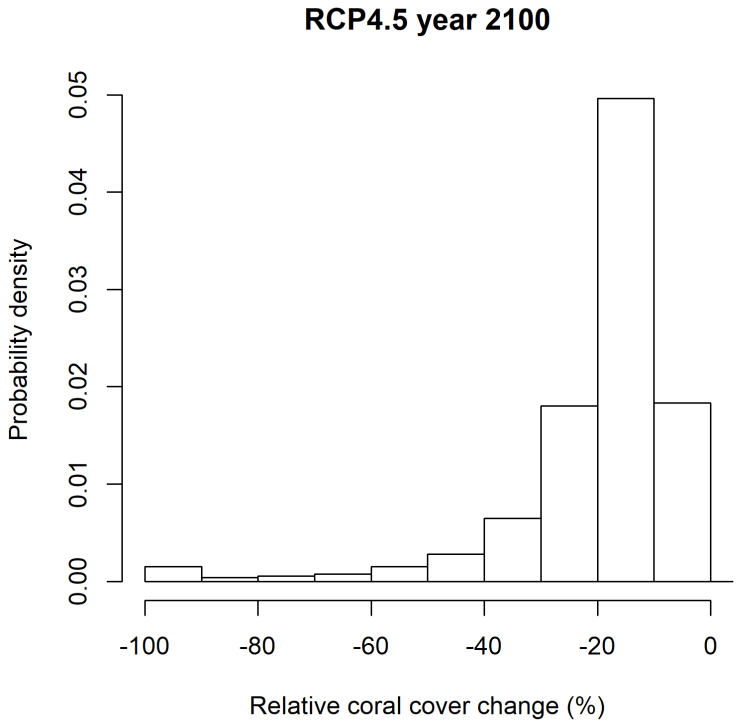

Figure S22. Relative change in percent coral cover globally in 2100 under climate change scenario RCP4.5.

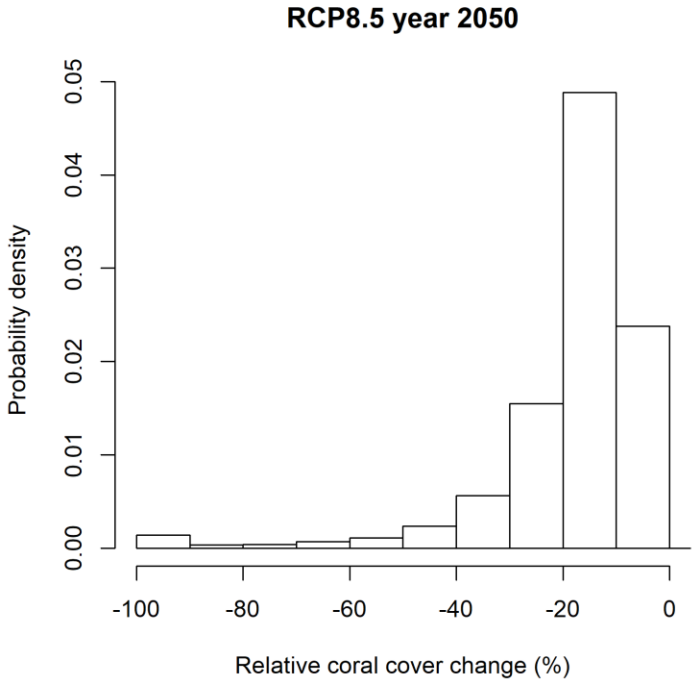

Figure S23. Relative change in percent coral cover in 2050 globally under climate change scenario RCP8.5.

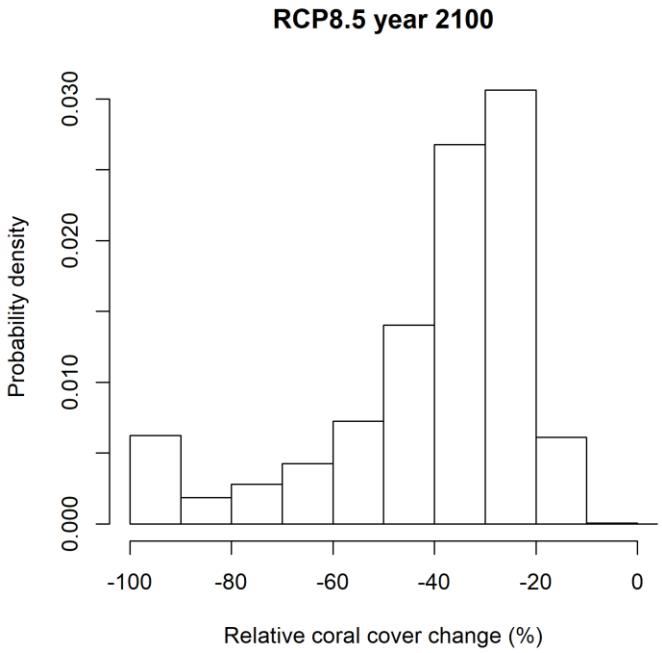

Figure S24. Relative change in percent coral cover in 2100 globally under climate change scenario RCP8.5.

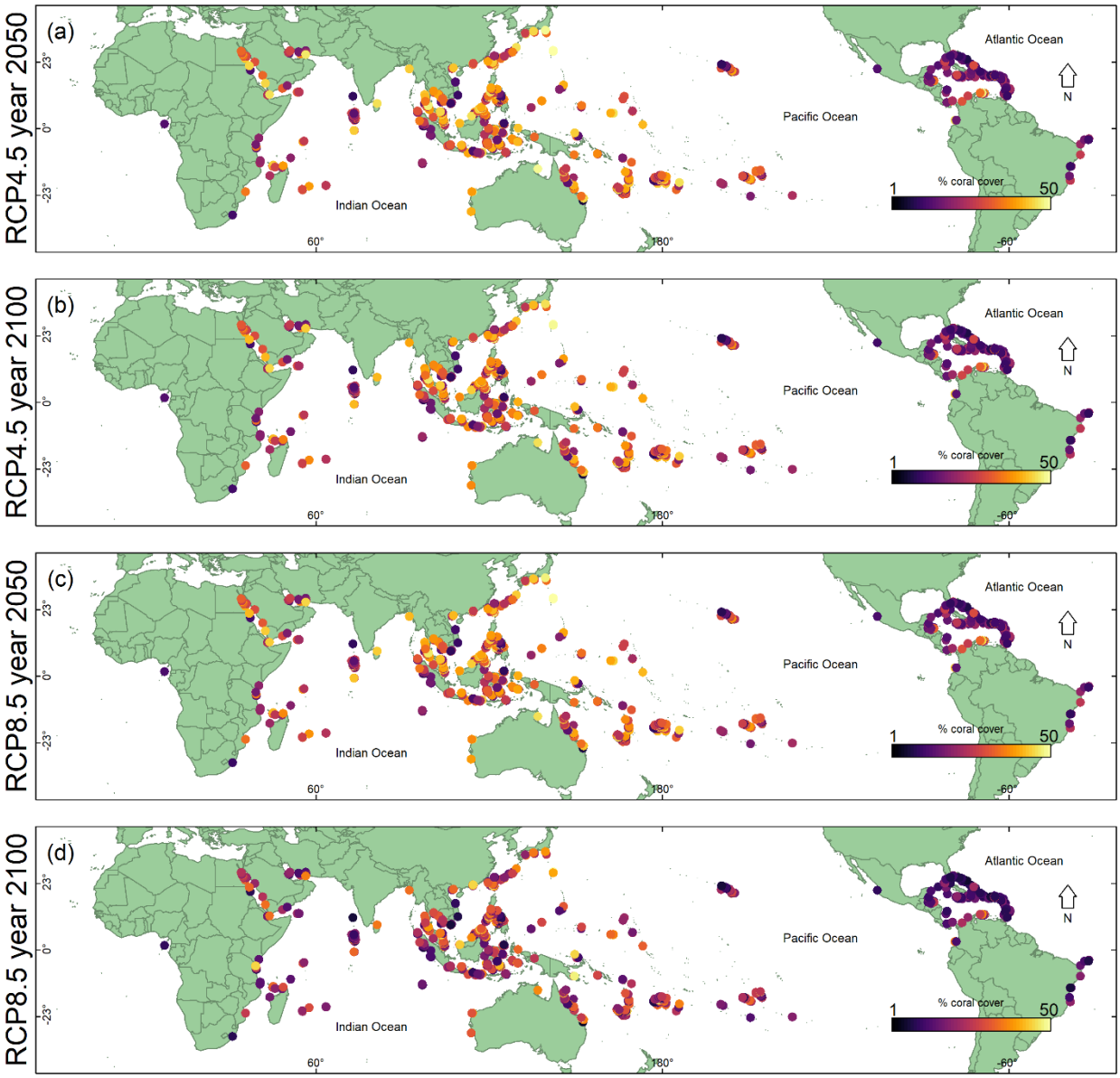

Figure S25. Projected future % coral cover globally. The projected future mean % coral cover for each of 2949 sites. a) Year 2050 for RCP4.5 b) Year 2100 for RCP4.5 c) Year 2050 for RCP8.5 and d) Year 2100 for RCP8.5.

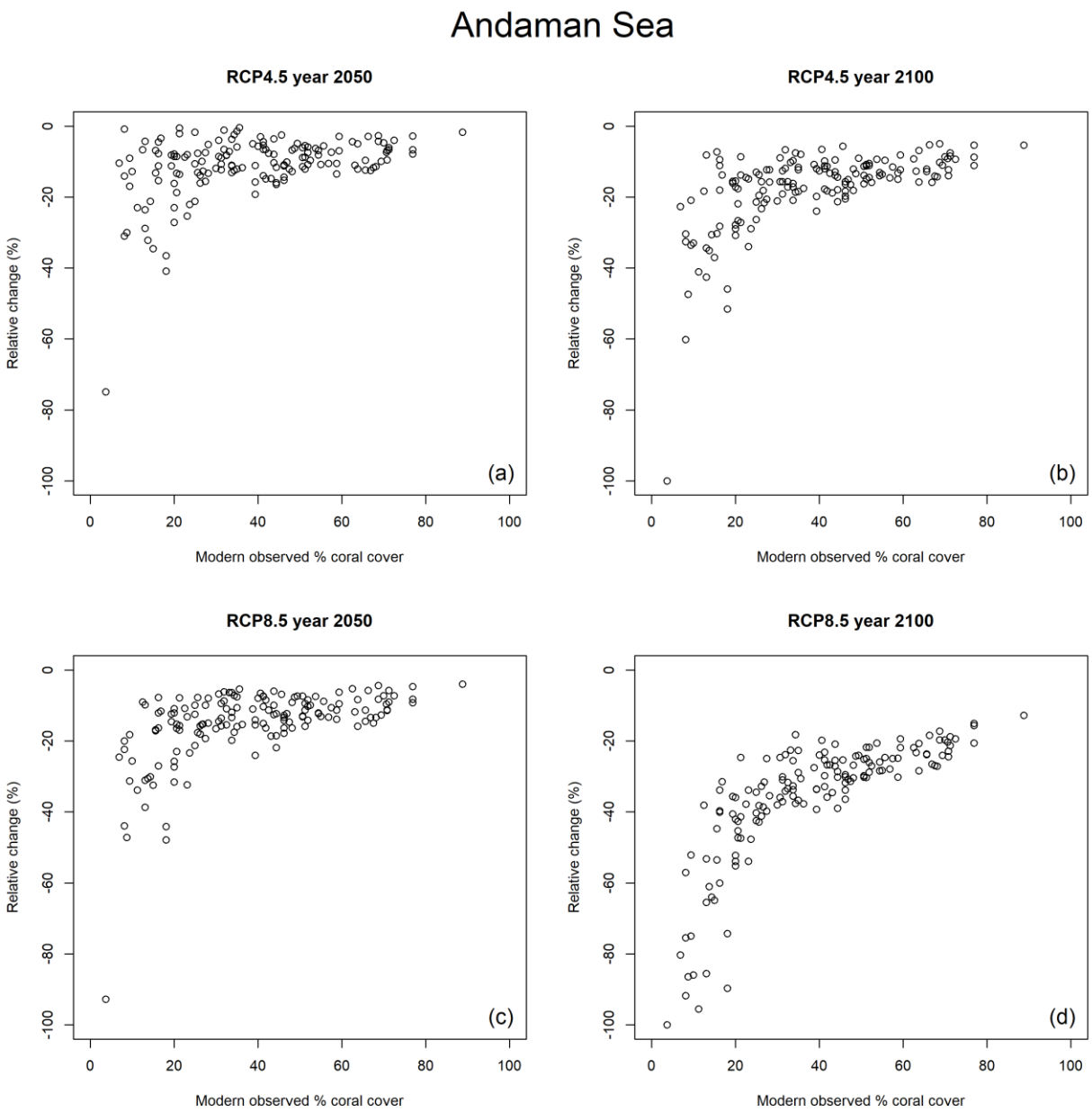

Figure S26. Relative change in percent coral cover in the Andaman Sea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

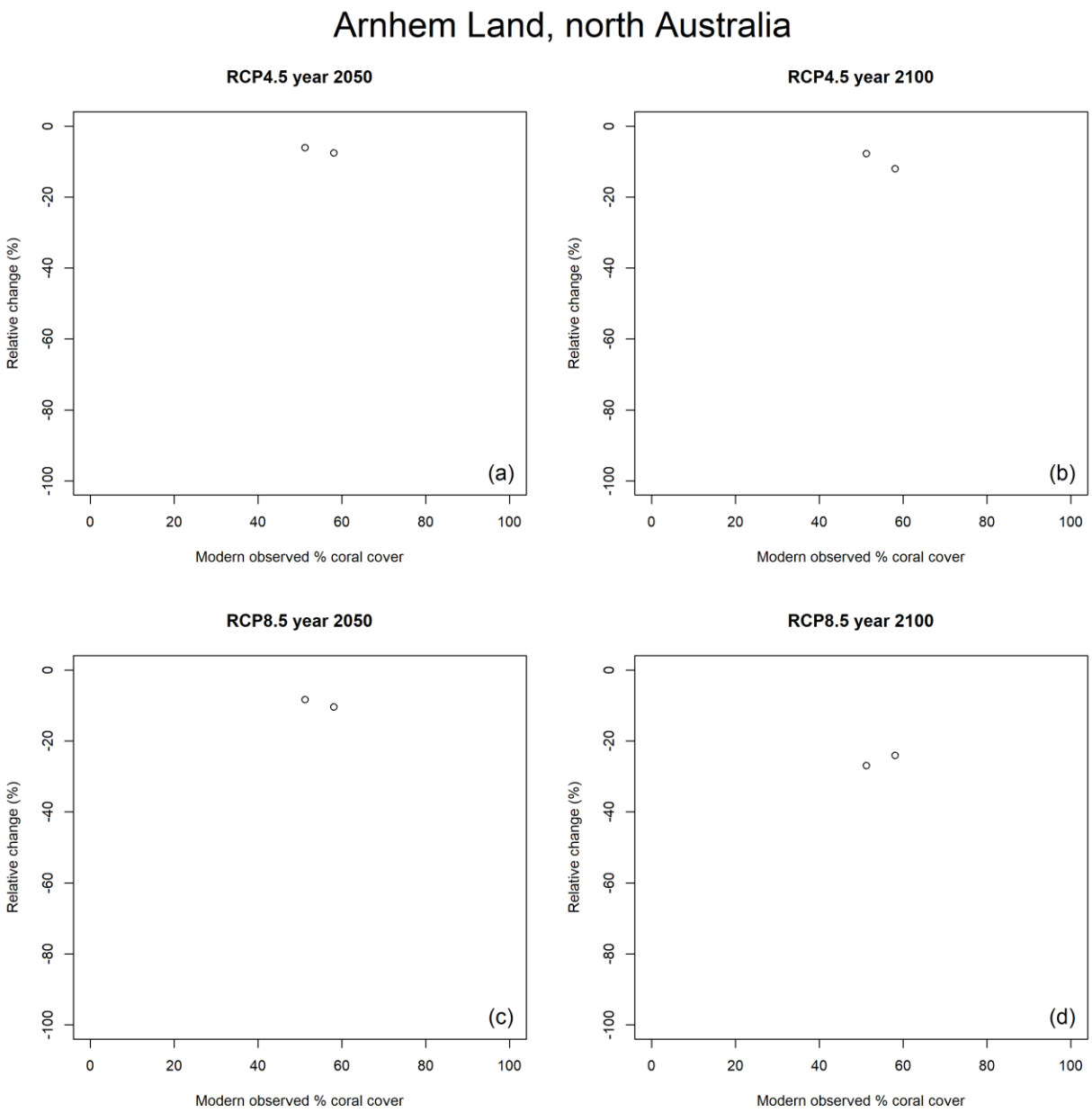

Figure S27. Relative change in percent coral cover in the Arnhem Land, north Australia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

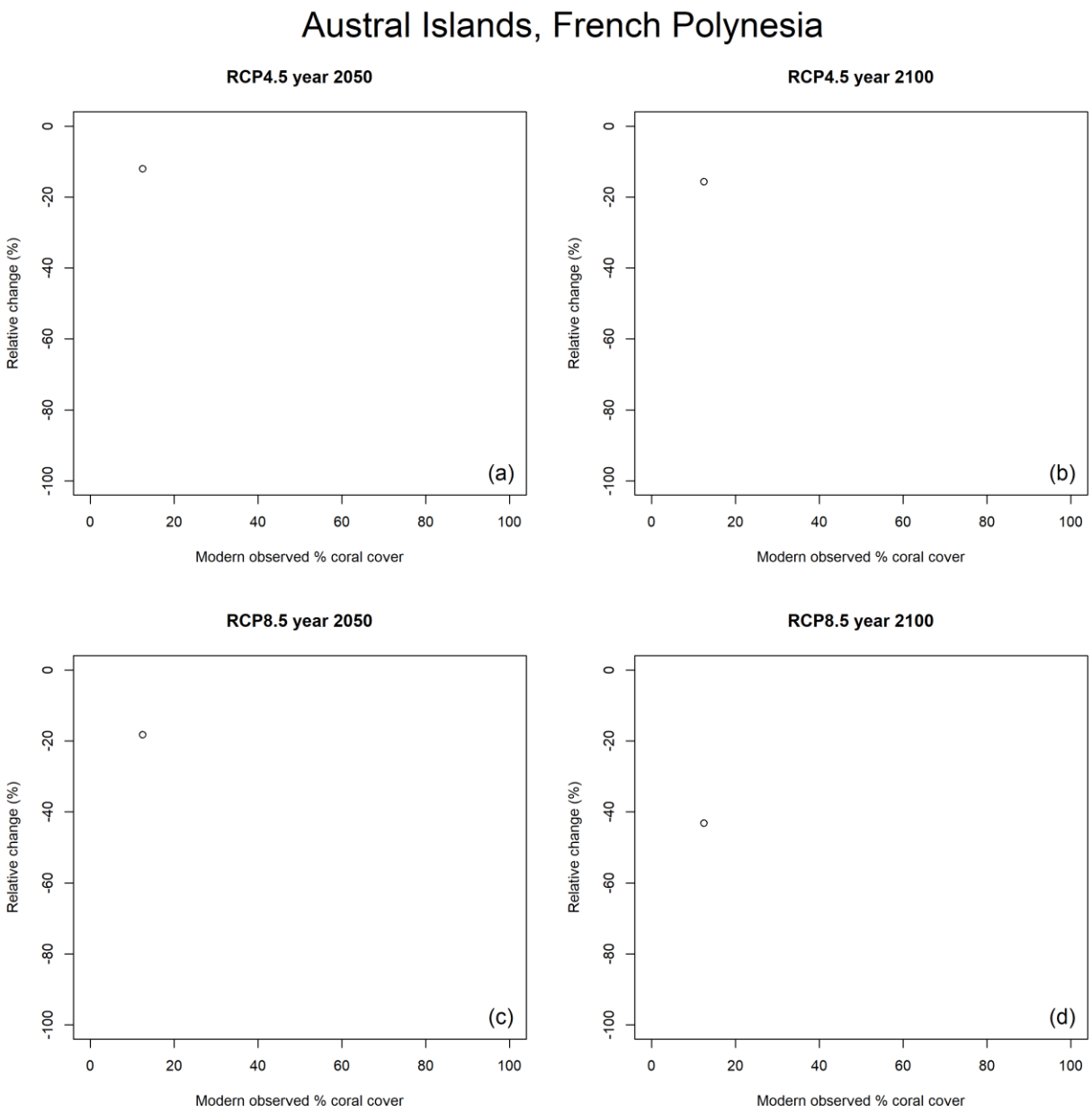

Figure S28. Relative change in percent coral cover in the Austral Islands, French Polynesia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

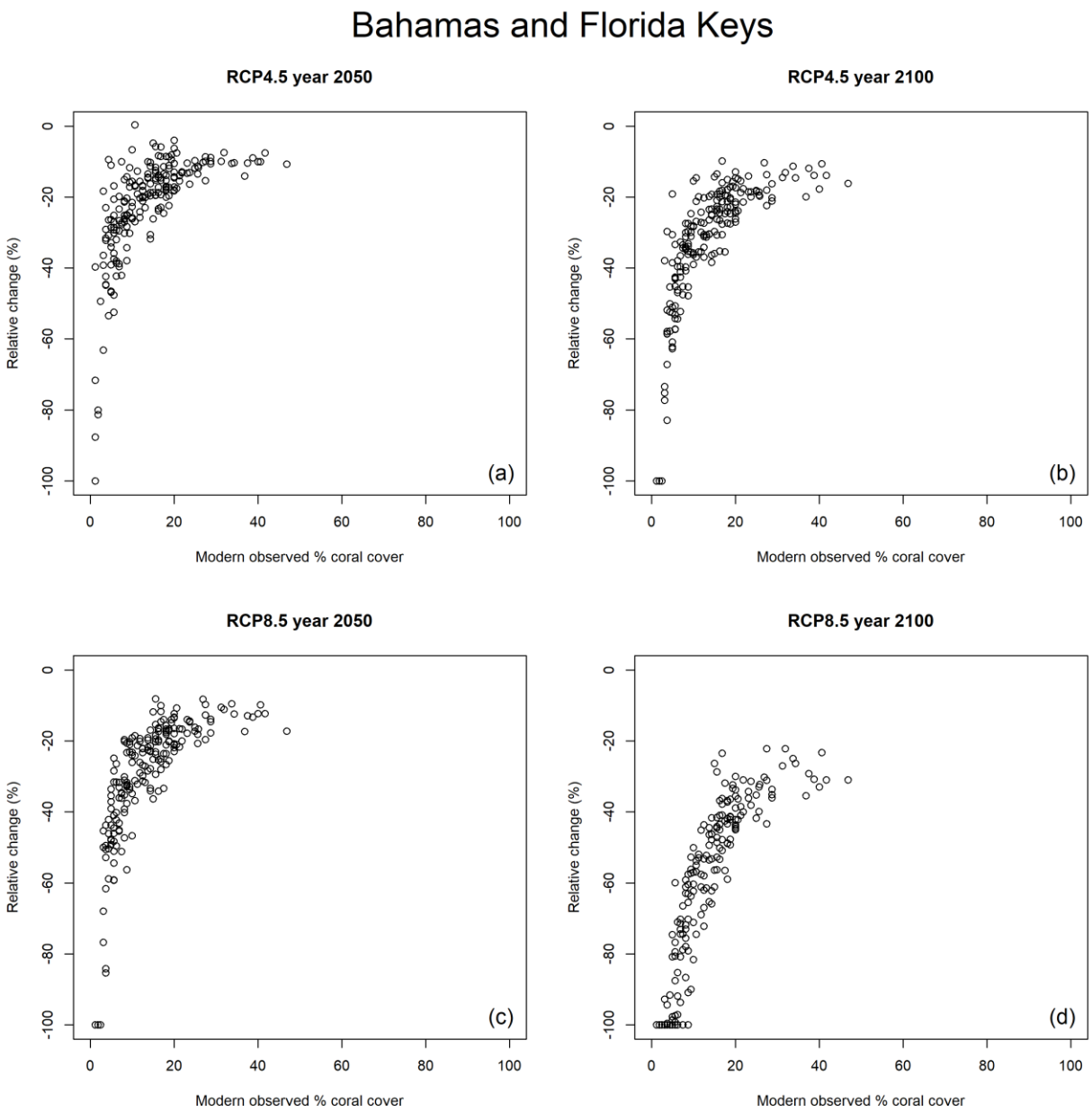

Figure S29. Relative change in percent coral cover in the Bahamas and Florida Keys ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

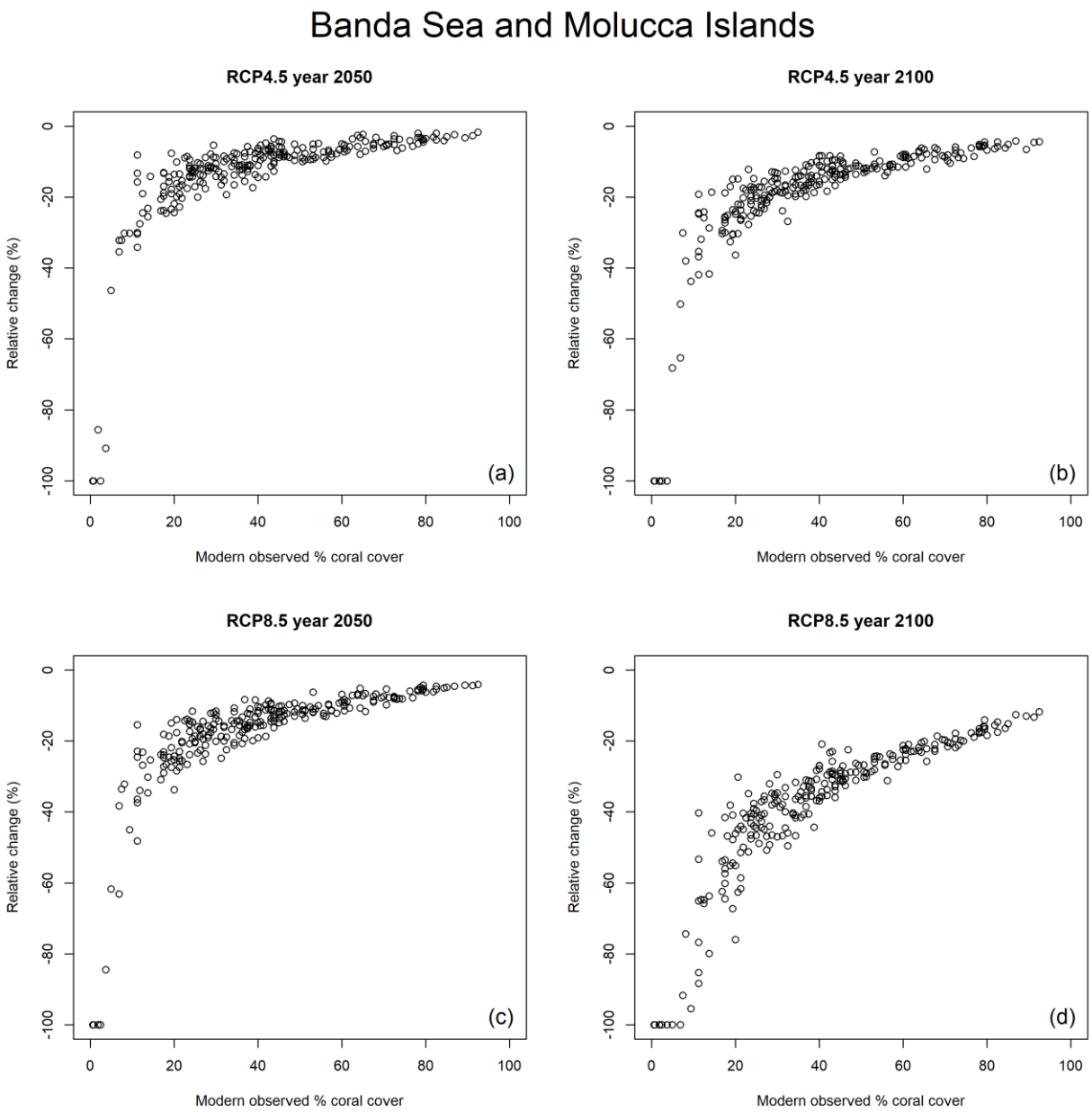

Figure S30. Relative change in percent coral cover in the Banda Sea and Molucca Islands ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

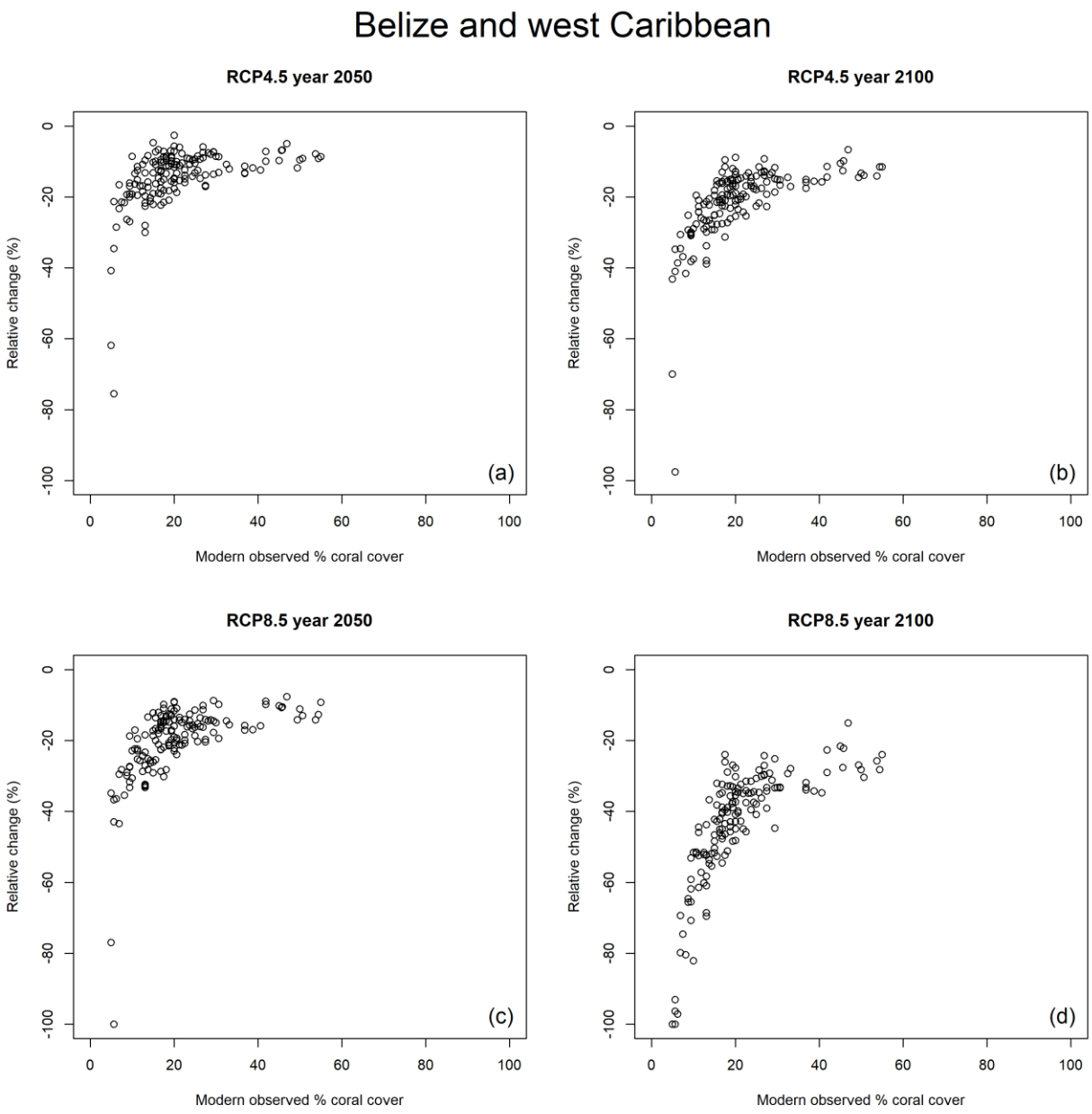

Figure S31. Relative change in percent coral cover in the Belize and west Caribbean ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

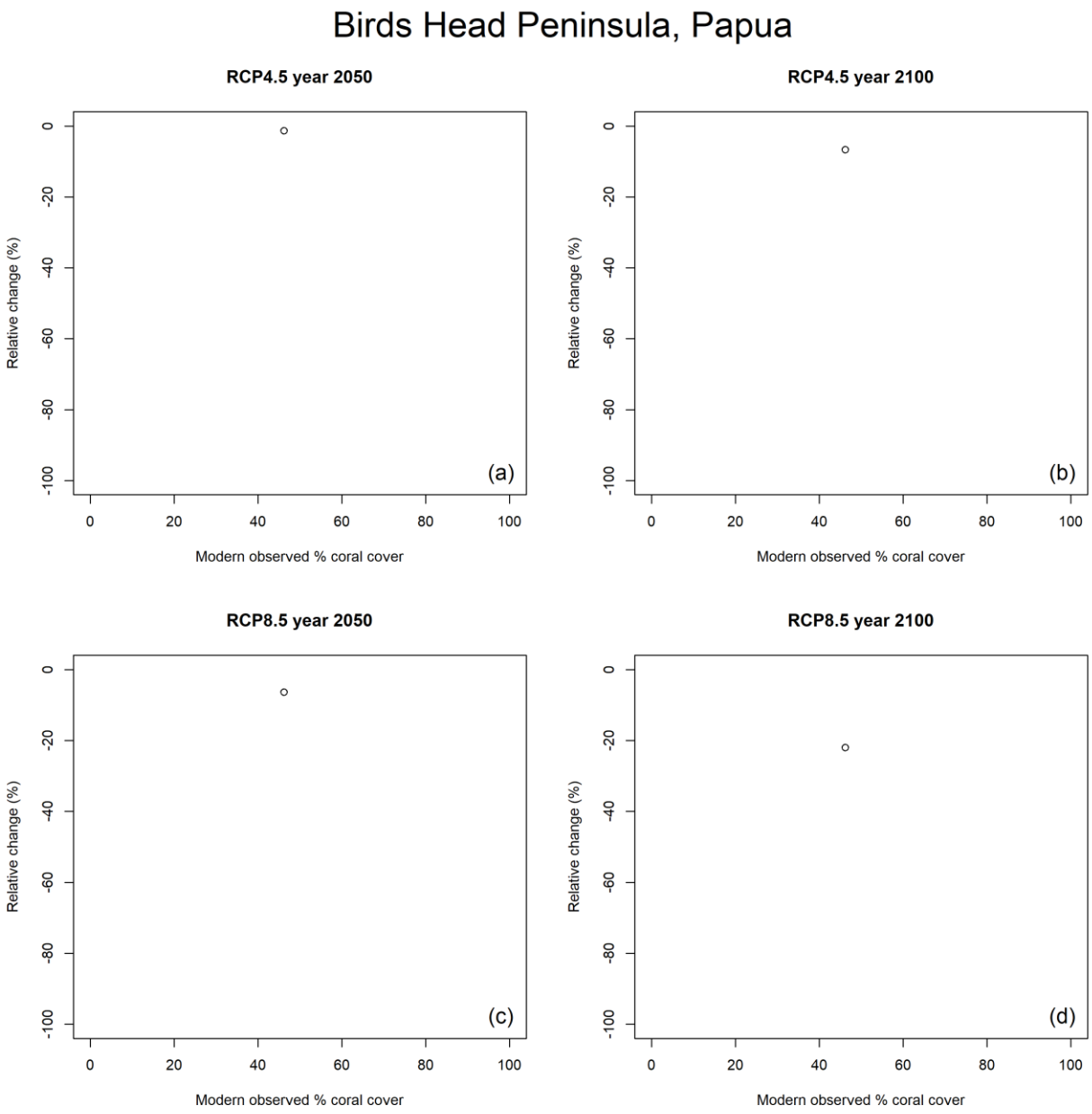

Figure S32. Relative change in percent coral cover in the Birds Head Peninsula, Papua ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

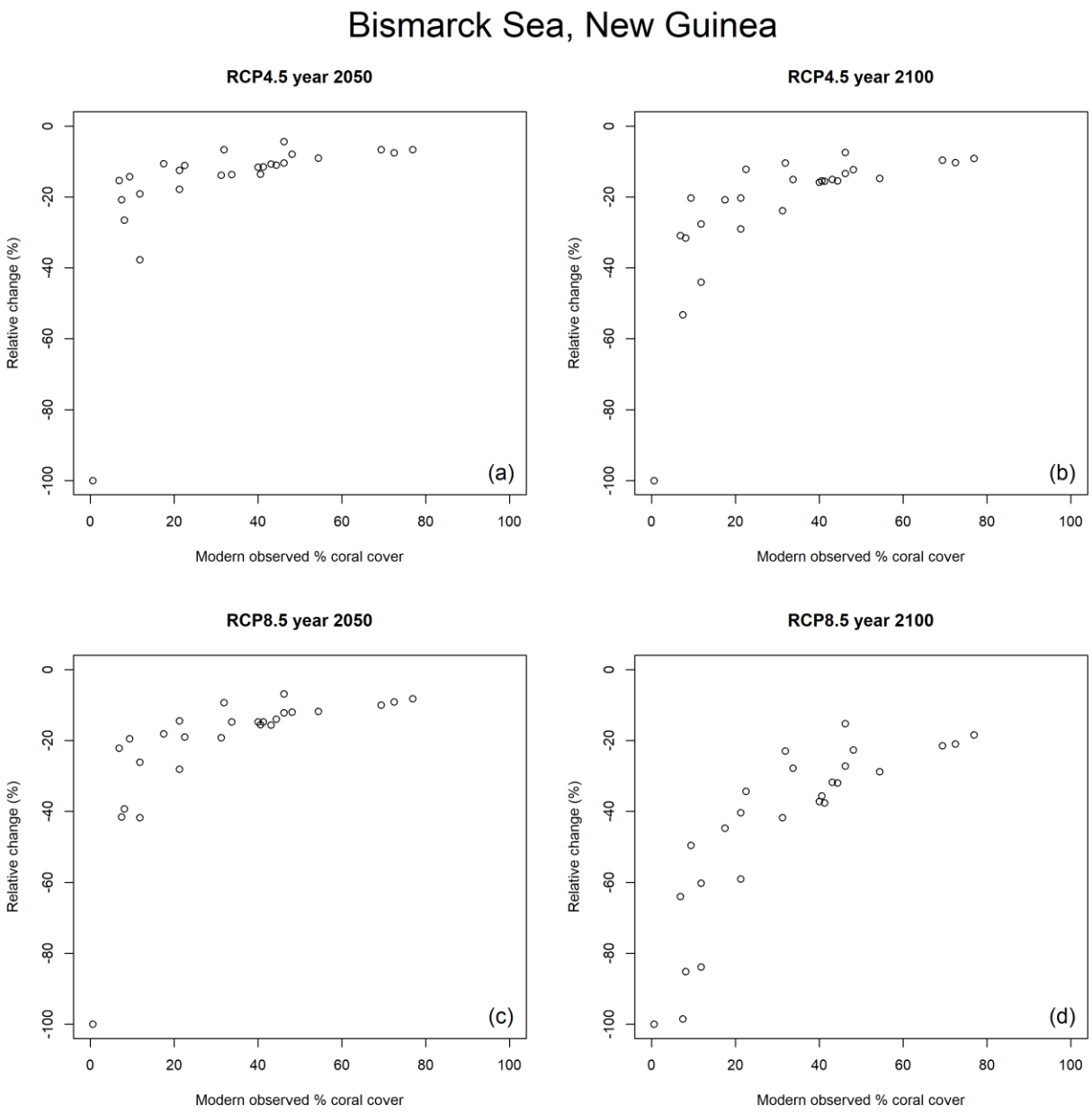

Figure S33. Relative change in percent coral cover in the Bismarck Sea, New Guinea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

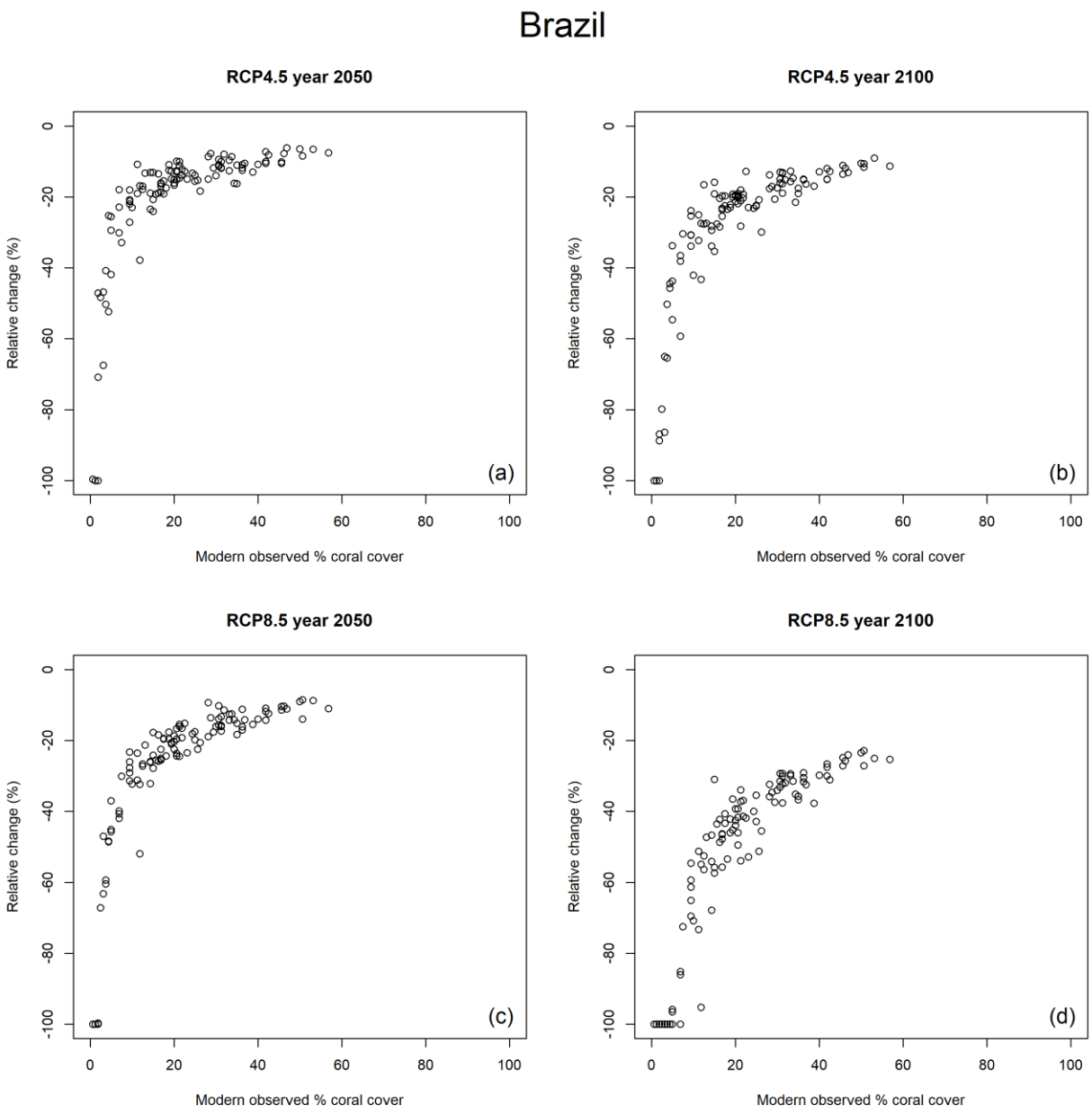

Figure S34. Relative change in percent coral cover in the Brazil ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

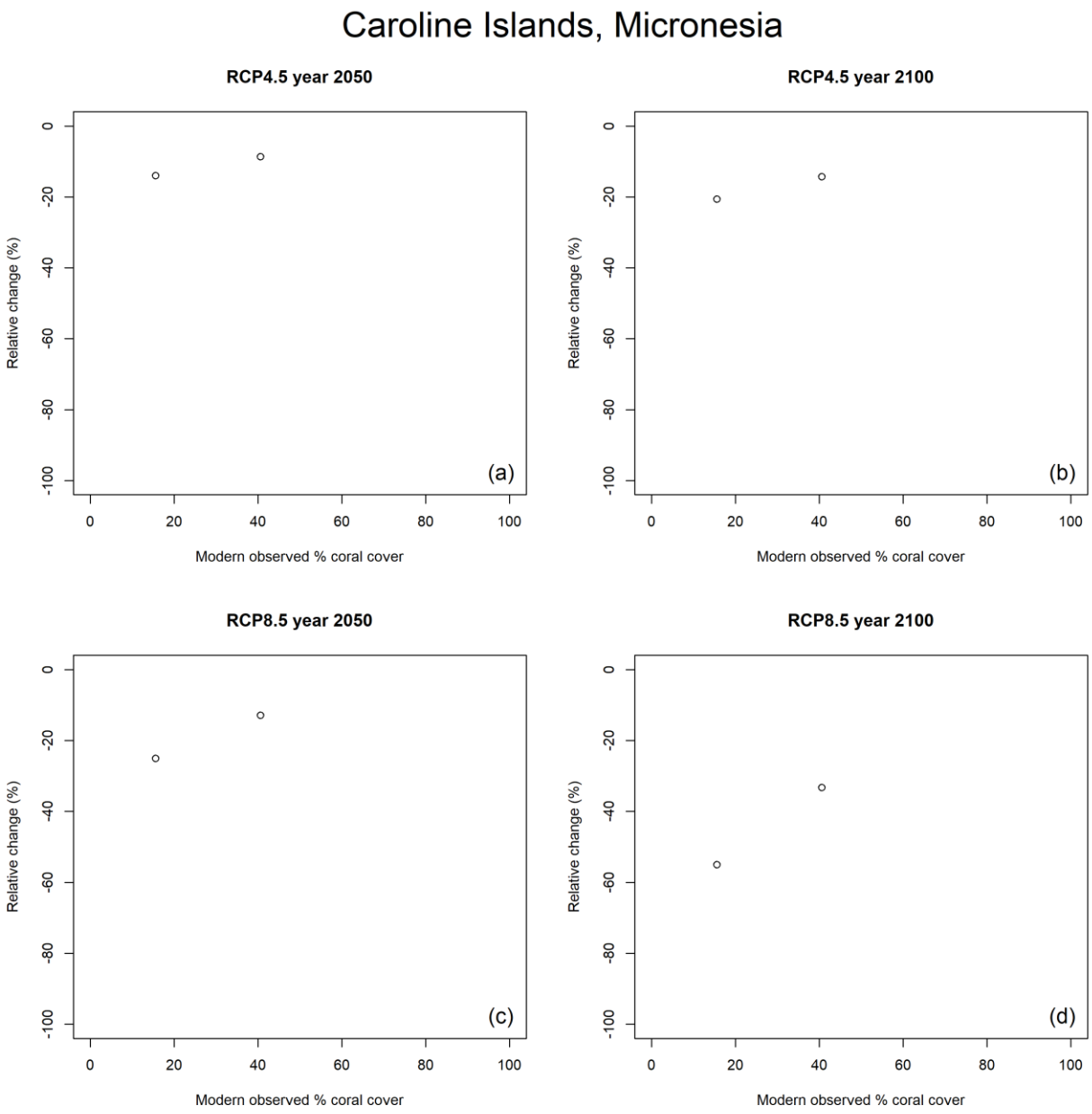

Figure S35. Relative change in percent coral cover in the Caroline Islands, Micronesia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

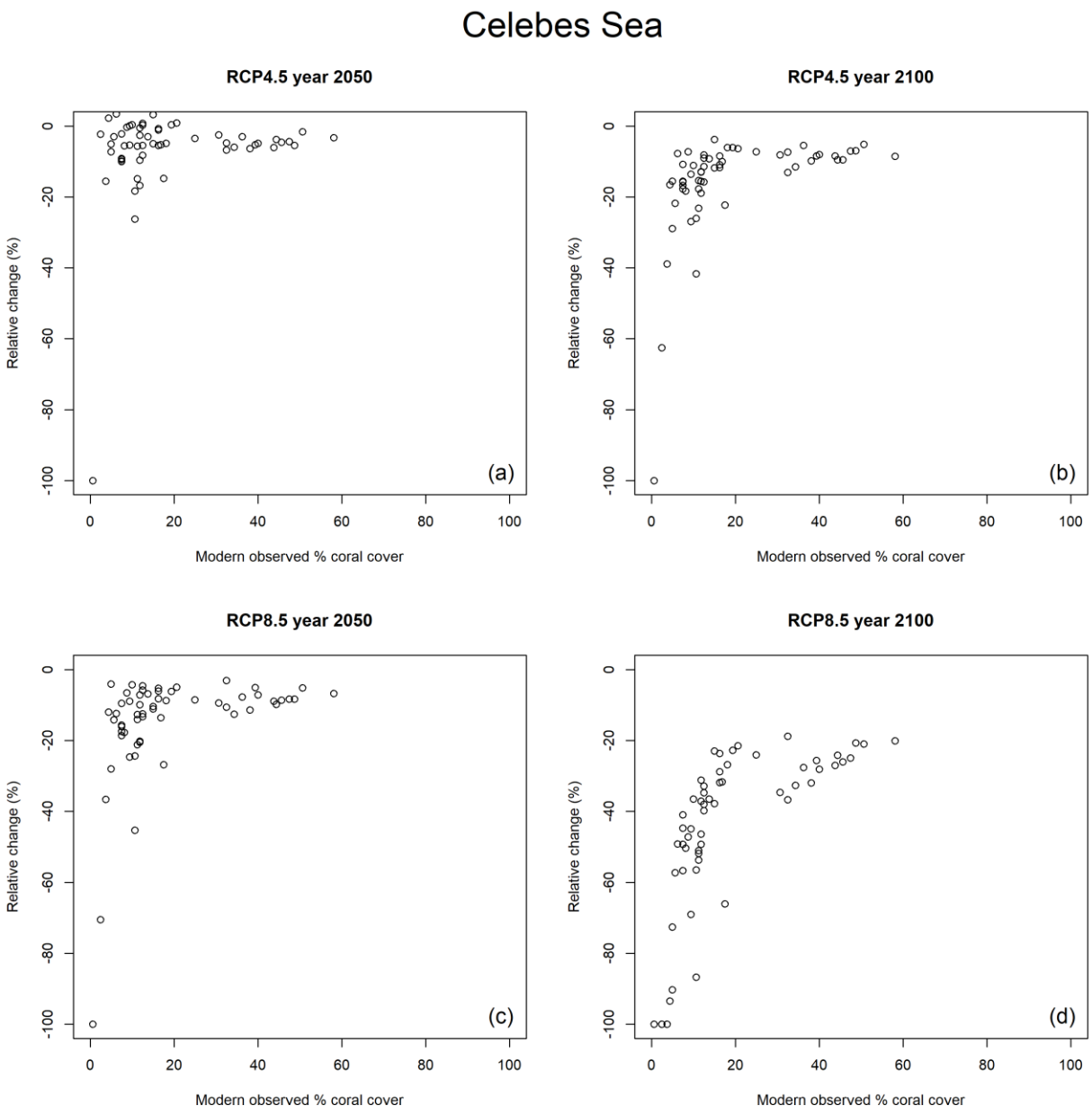

Figure S36. Relative change in percent coral cover in the Celebs Sea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

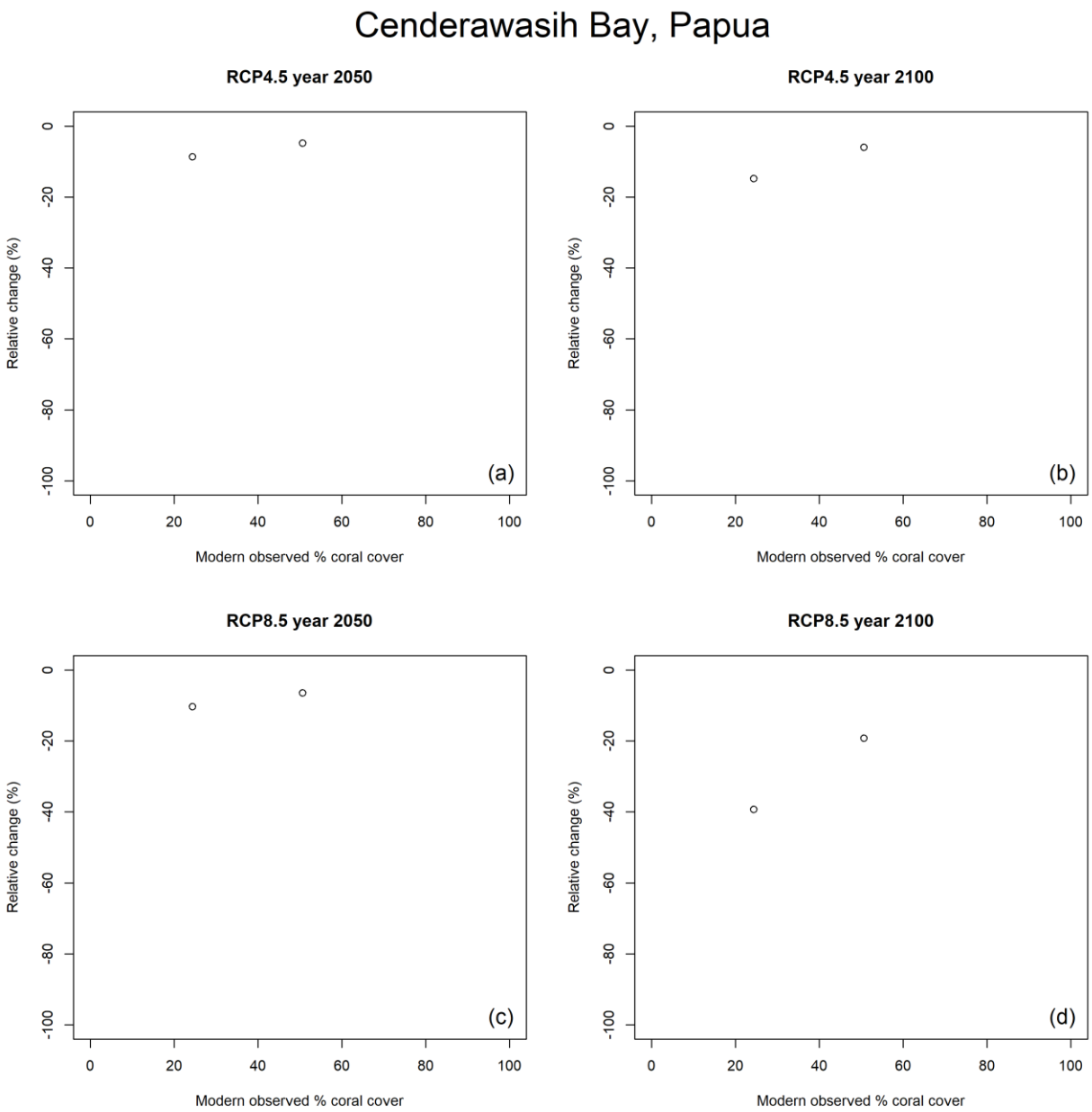

Figure S37. Relative change in percent coral cover in the Cenderawasih Bay, Papua ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

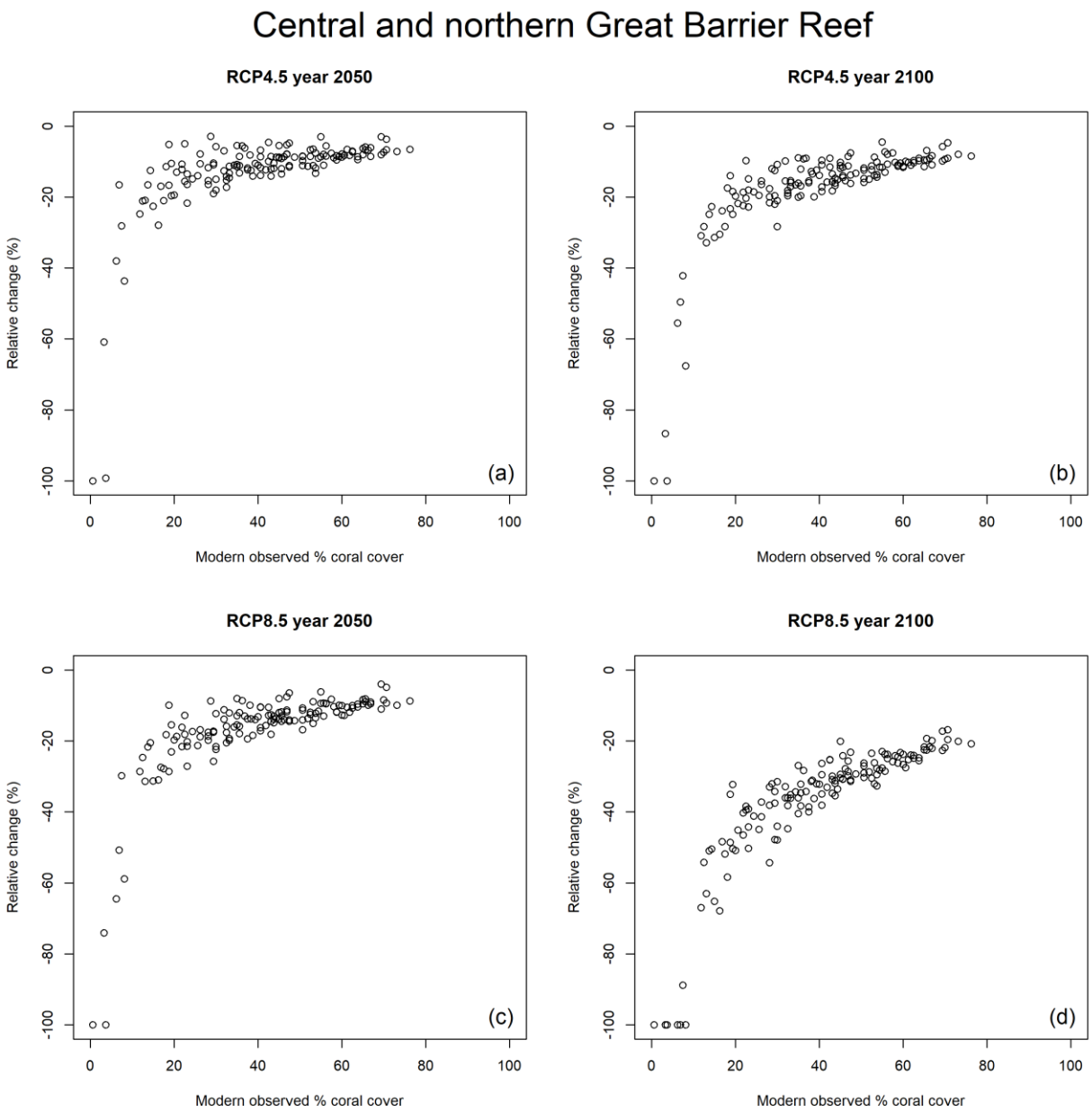

Figure S38. Relative change in percent coral cover in the central and northern Great Barrier Reef ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

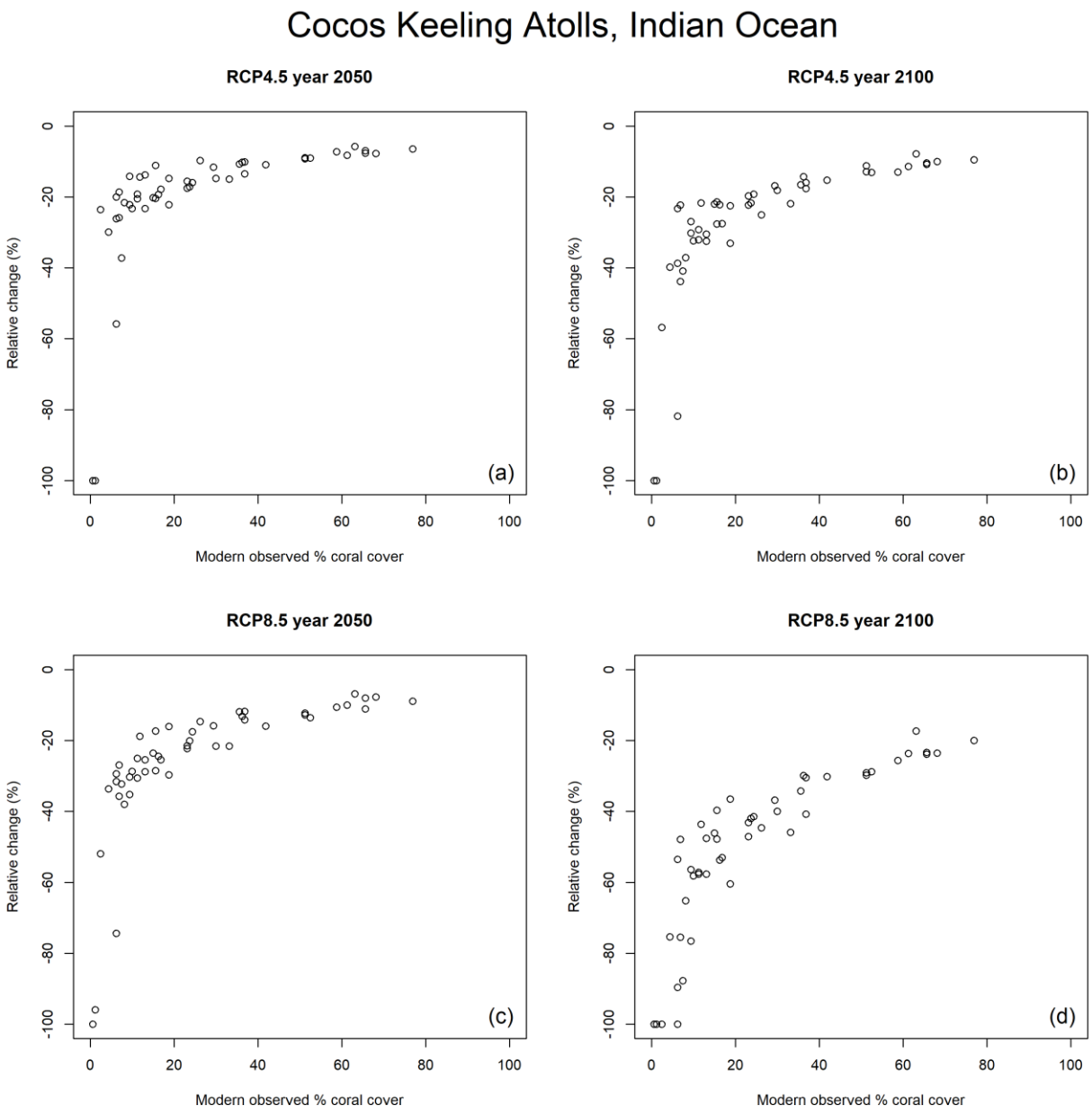

Figure S39. Relative change in percent coral cover in the Cocos Keeling Atolls, Indian Ocean ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

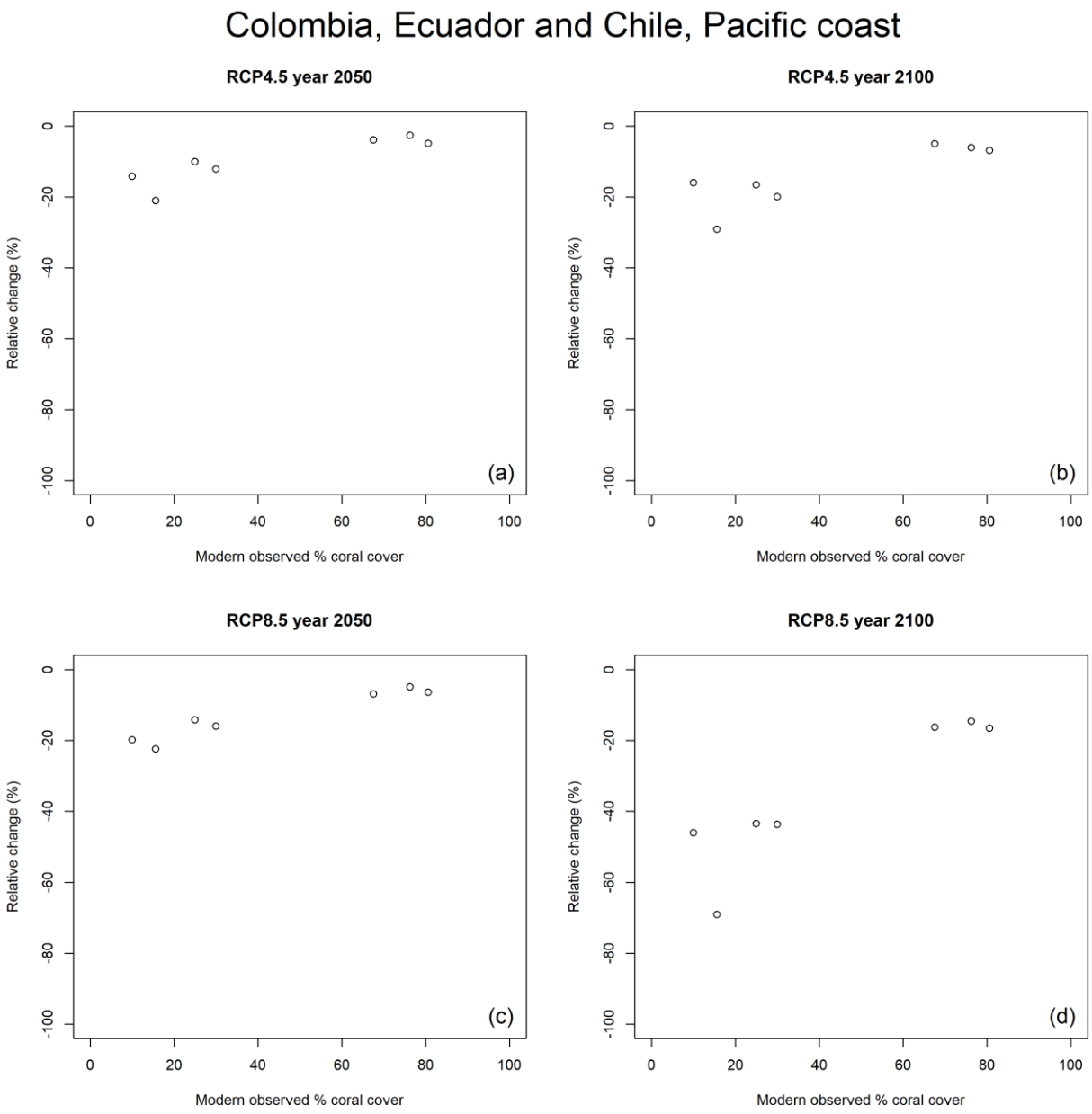

Figure S40. Relative change in percent coral cover in the Columbia, Ecuador, and Chile, Pacific coast ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

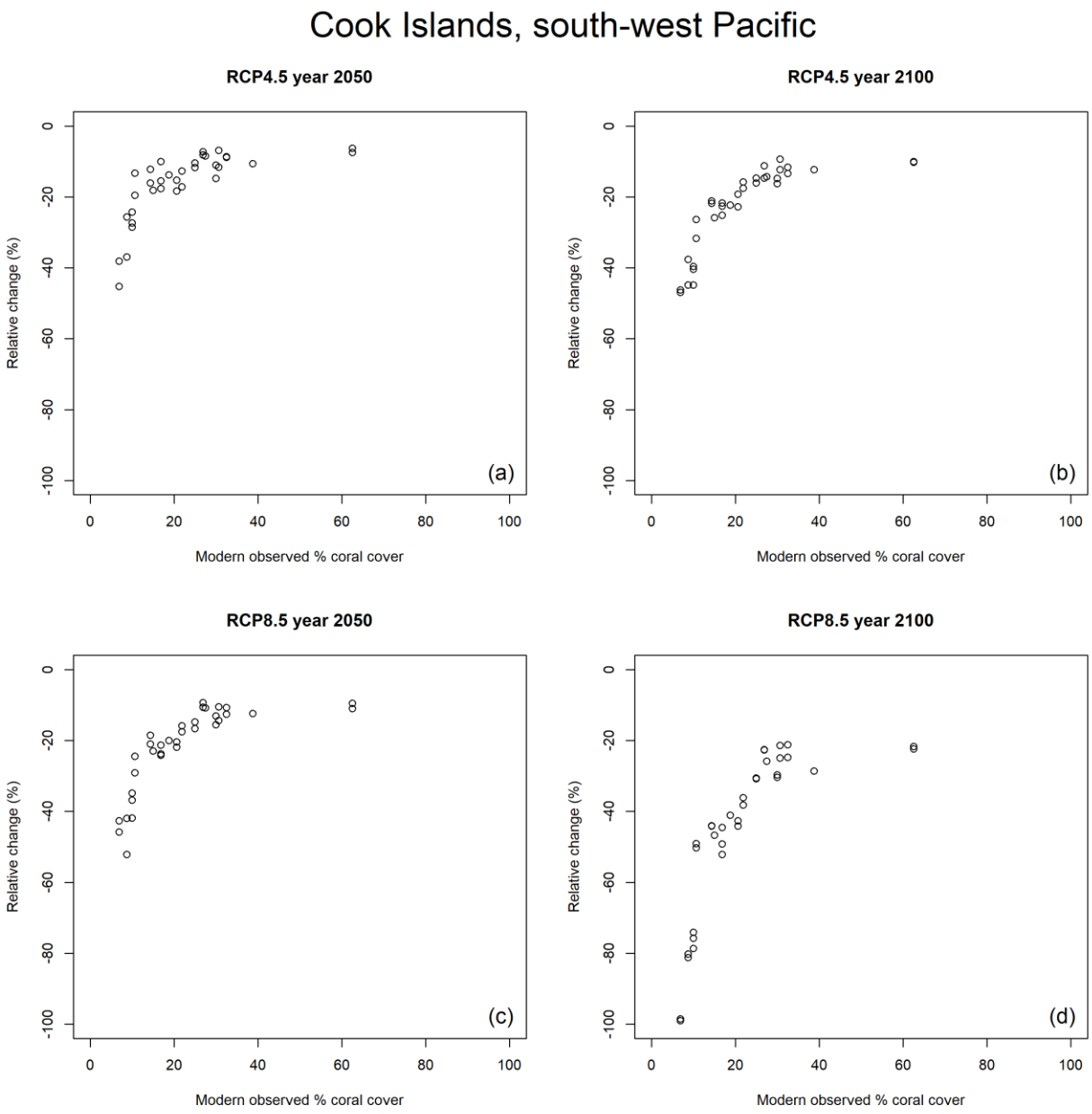

Figure S41. Relative change in percent coral cover in the Cook Islands, south-west Pacific ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

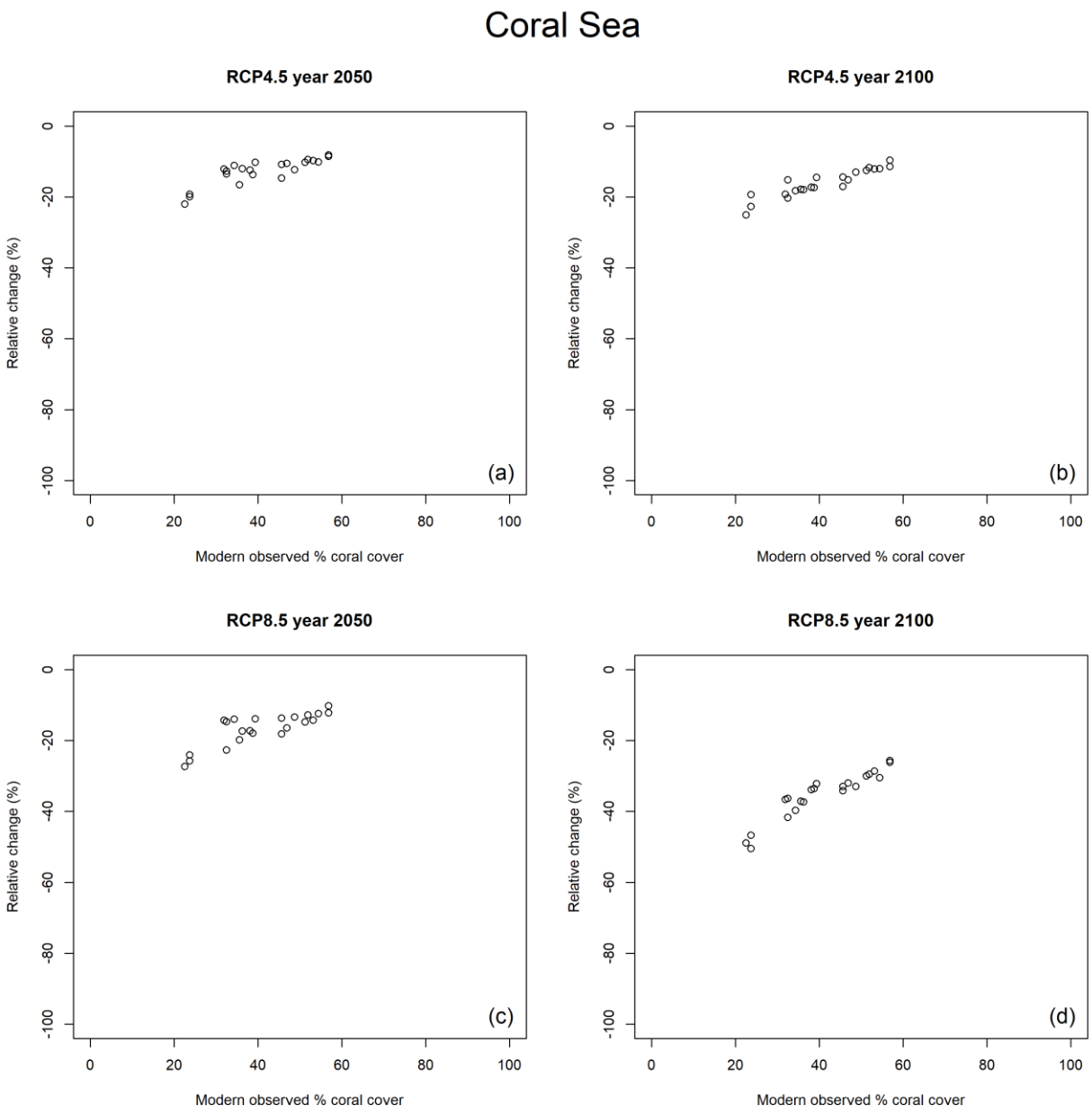

Figure S42. Relative change in percent coral cover in the Coral Sea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

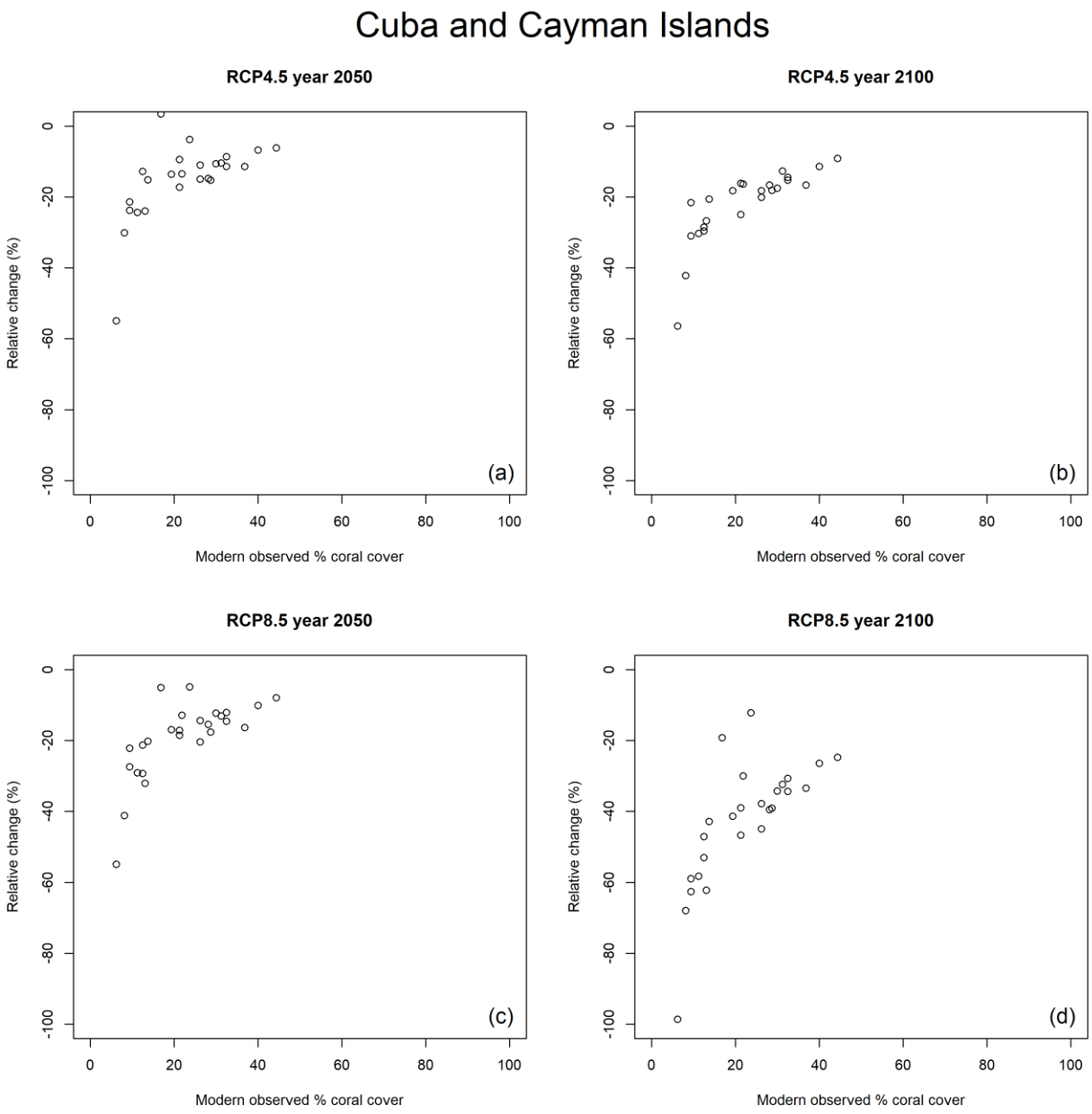

Figure S43. Relative change in percent coral cover in the Cuba and Cayman Islands ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

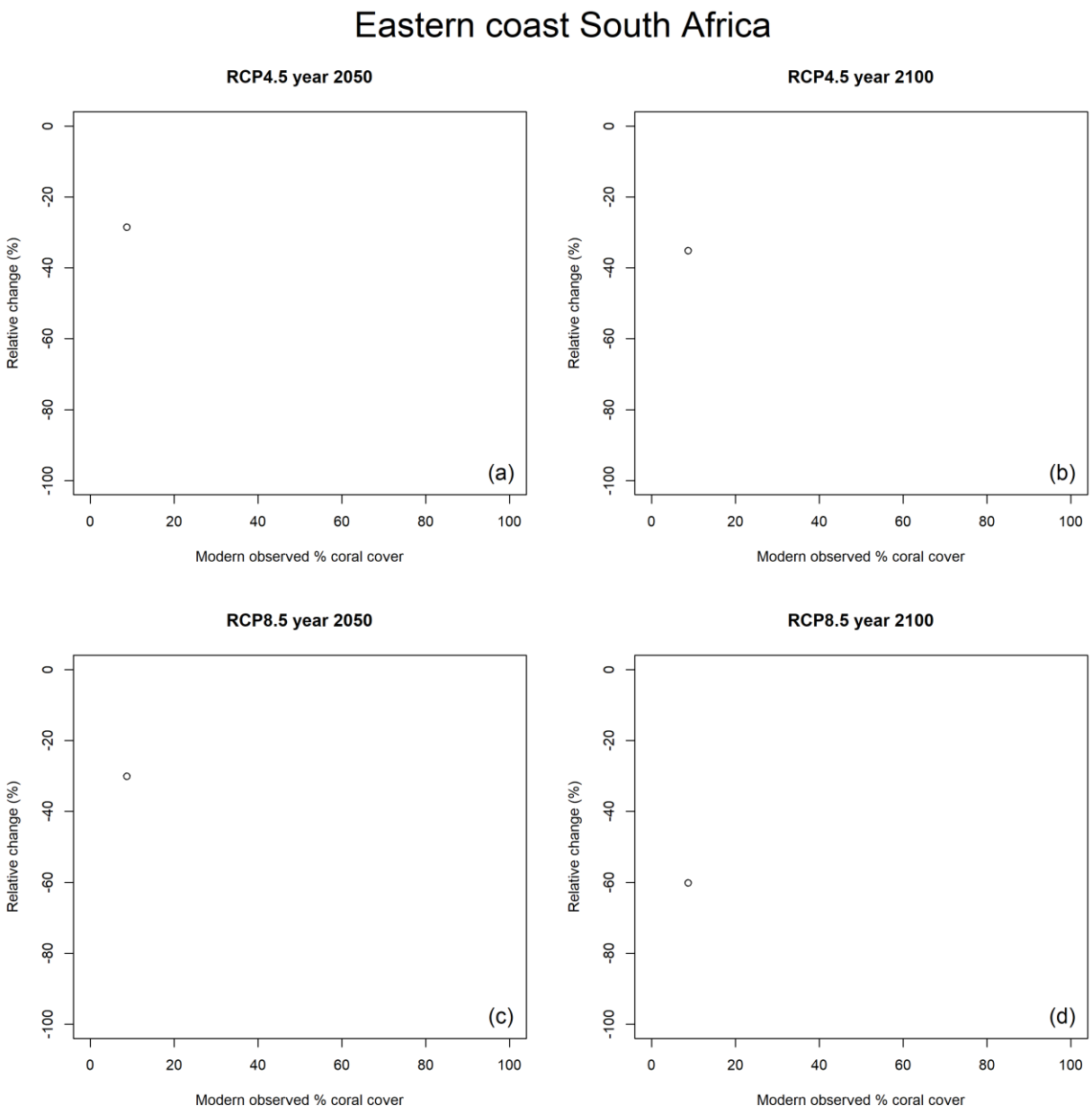

Figure S44. Relative change in percent coral cover in the Eastern coast South Africa ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

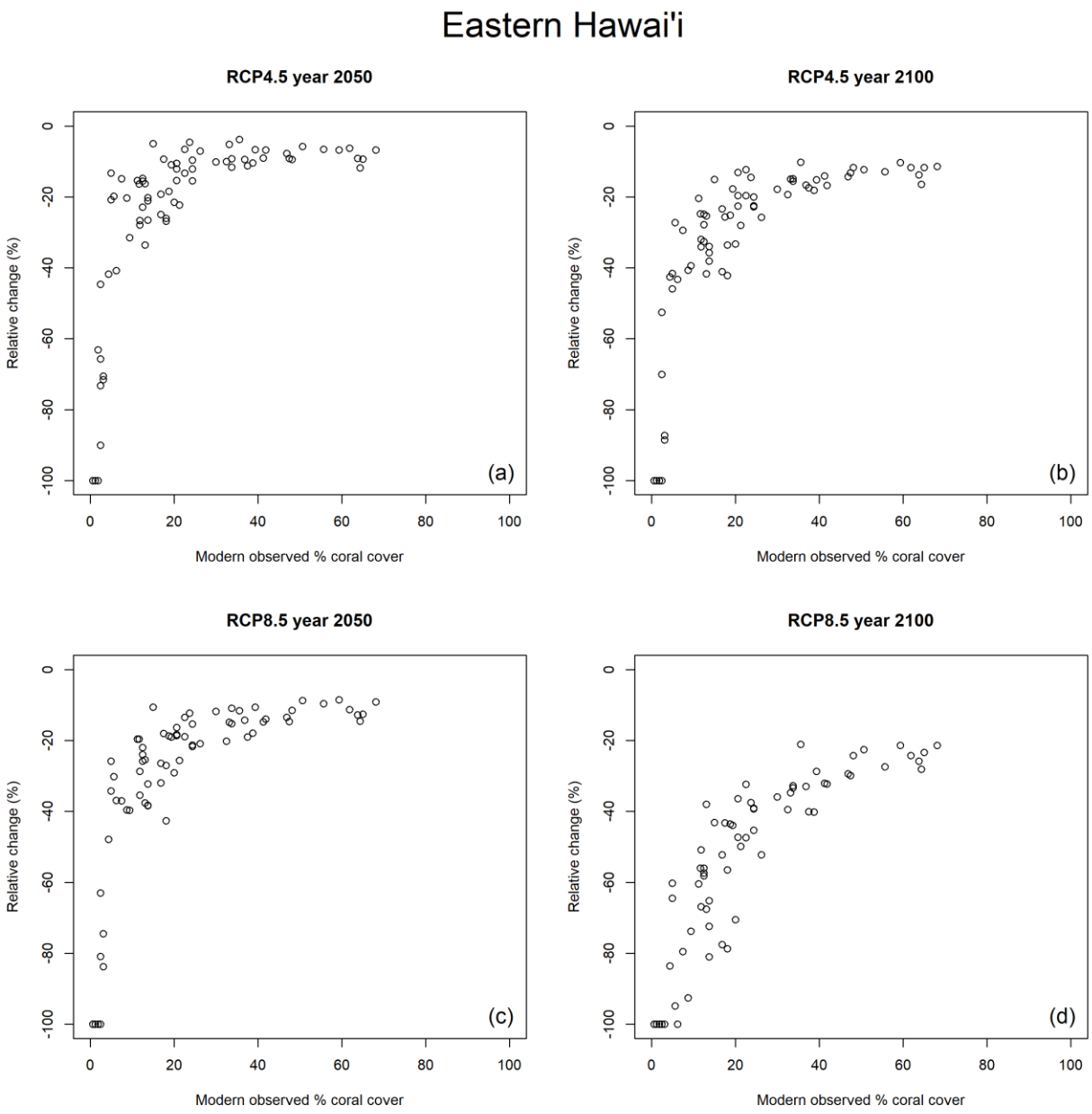

Figure S45. Relative change in percent coral cover in the eastern Hawai'i ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

Figure S46. Relative change in percent coral cover in the Fiji ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

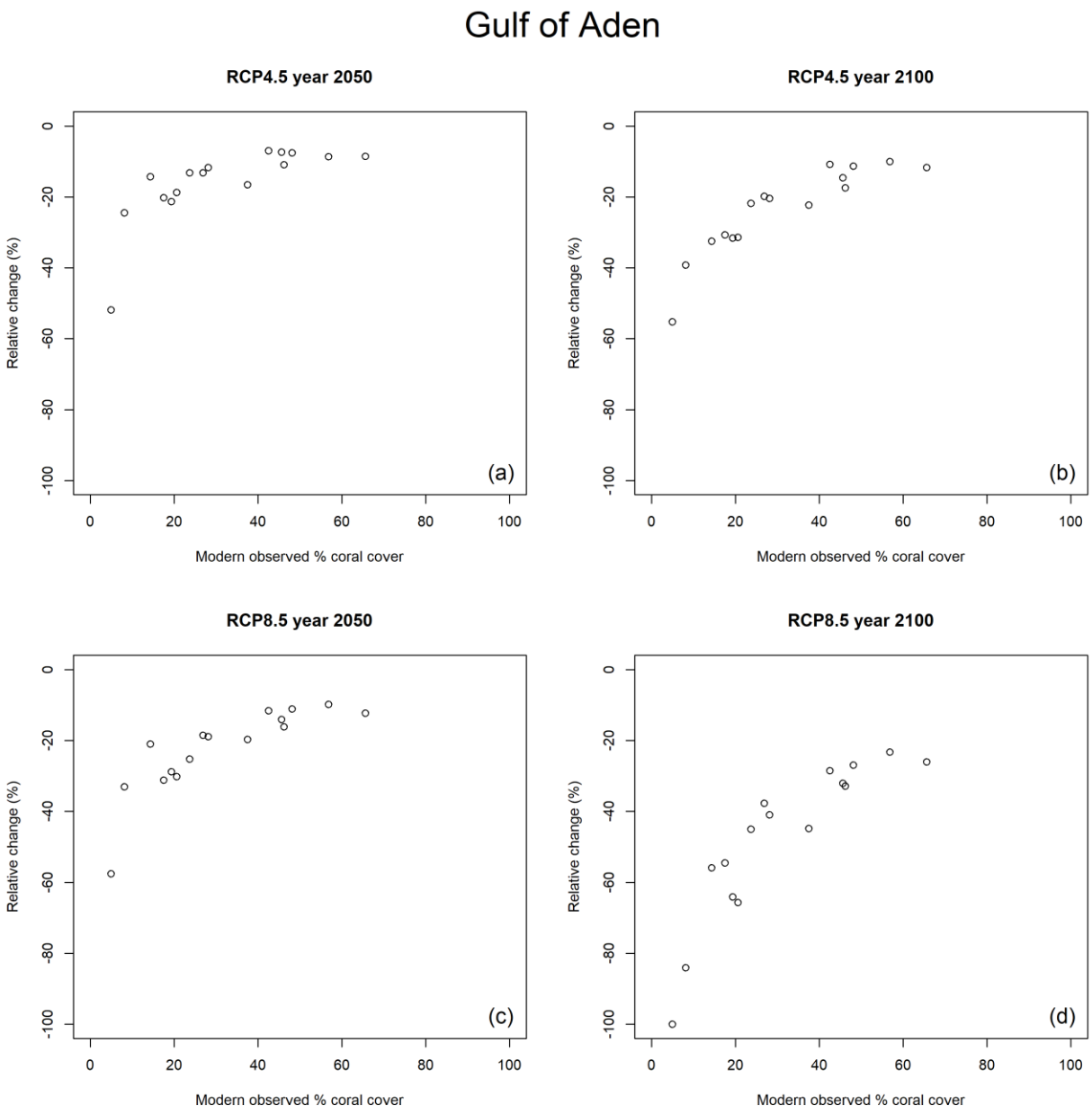

Figure S47. Relative change in percent coral cover in the Gulf of Aden ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

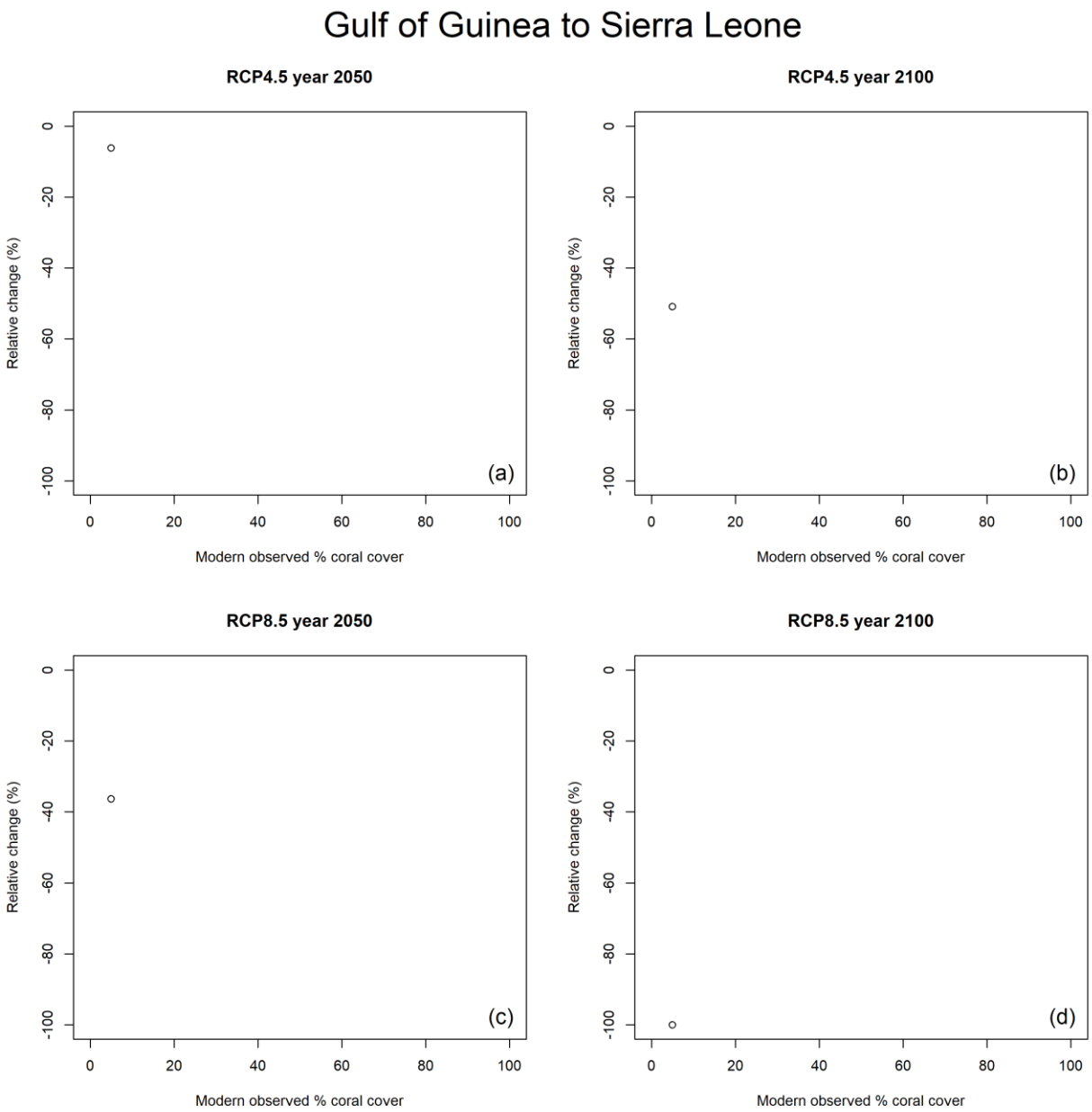

Figure S48. Relative change in percent coral cover in the Gulf of Guinea to Sierra Leone ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

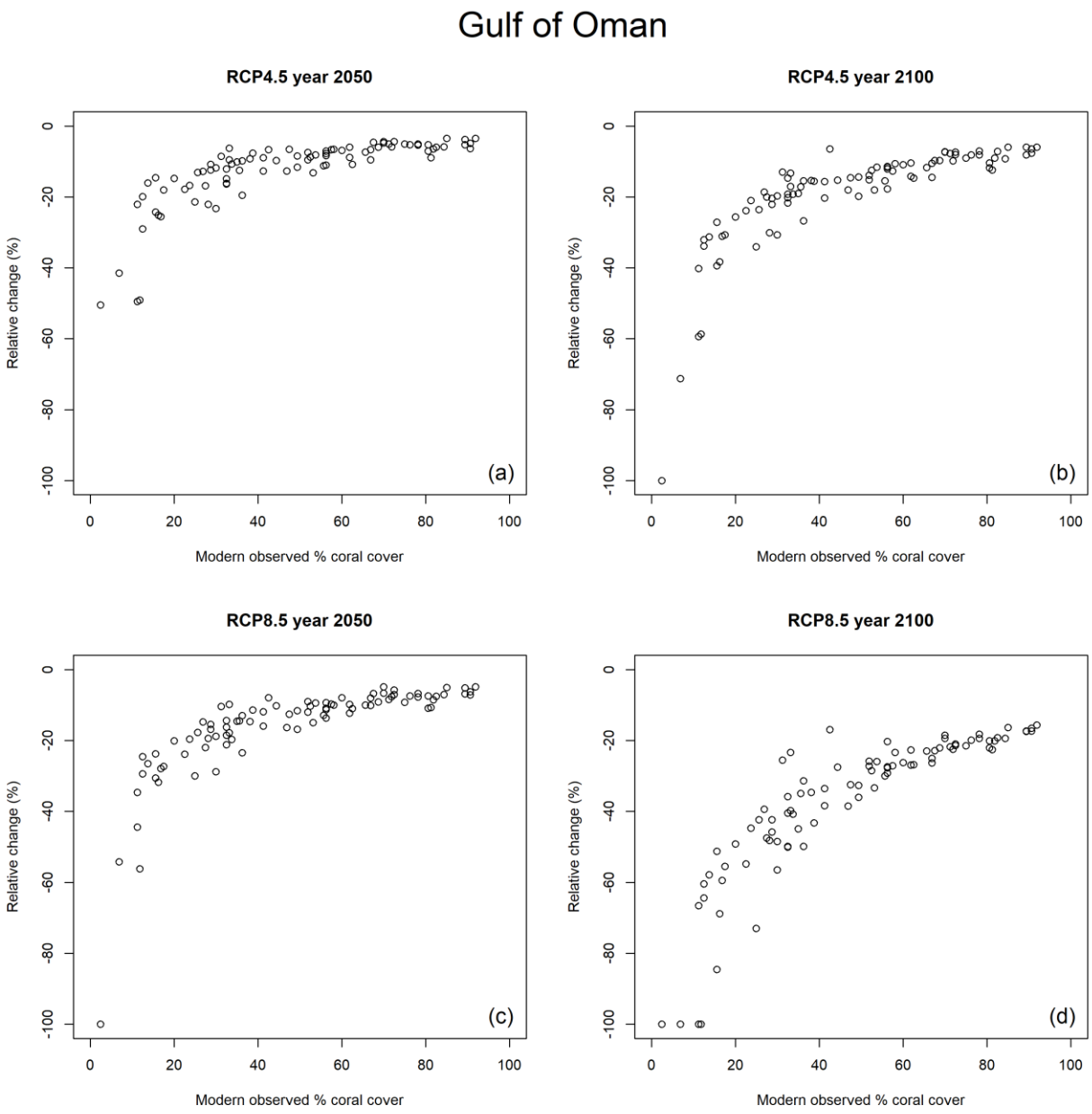

Figure S49. Relative change in percent coral cover in the Gulf of Oman ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

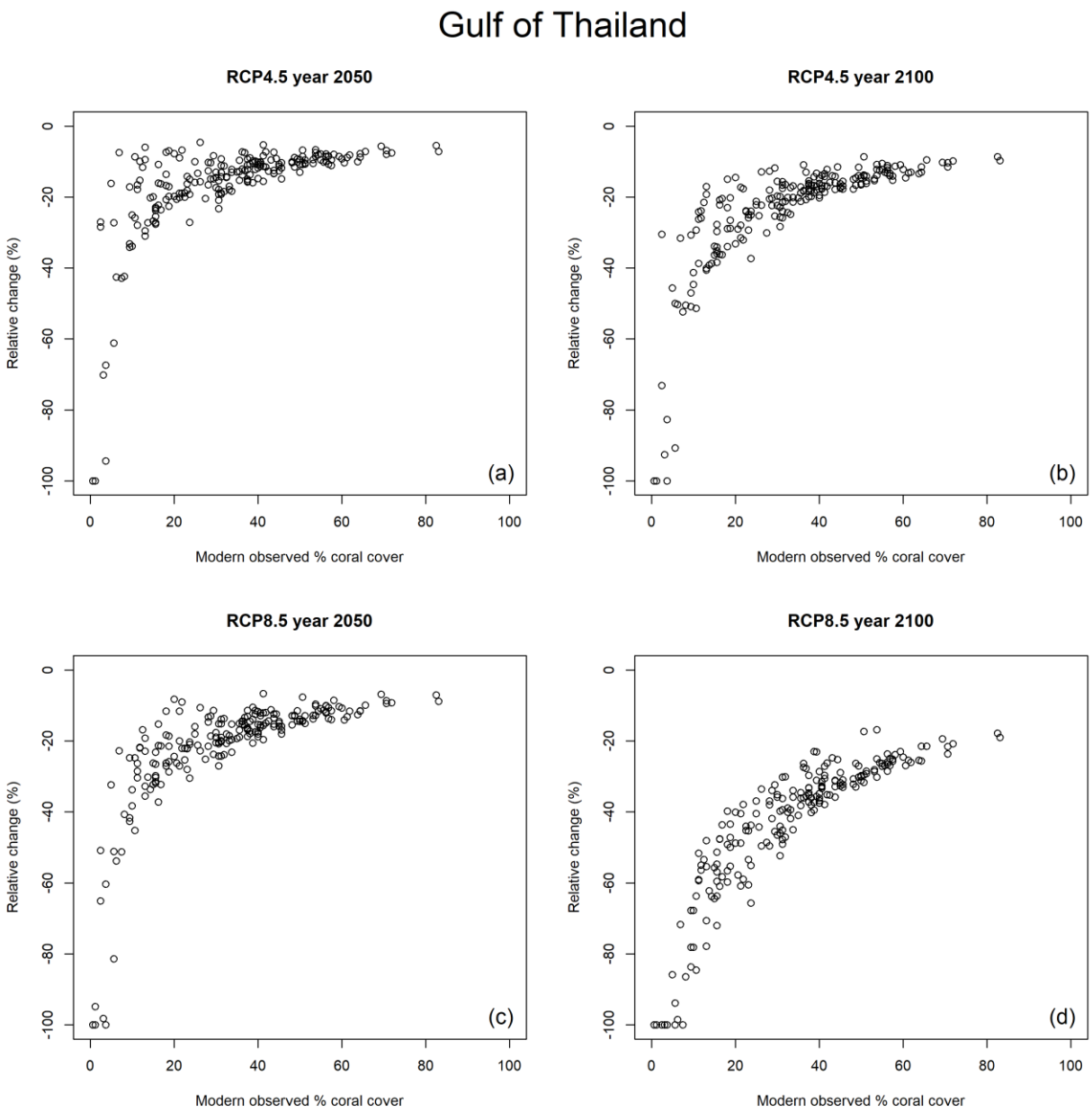

Figure S50. Relative change in percent coral cover in the Gulf of Thailand ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

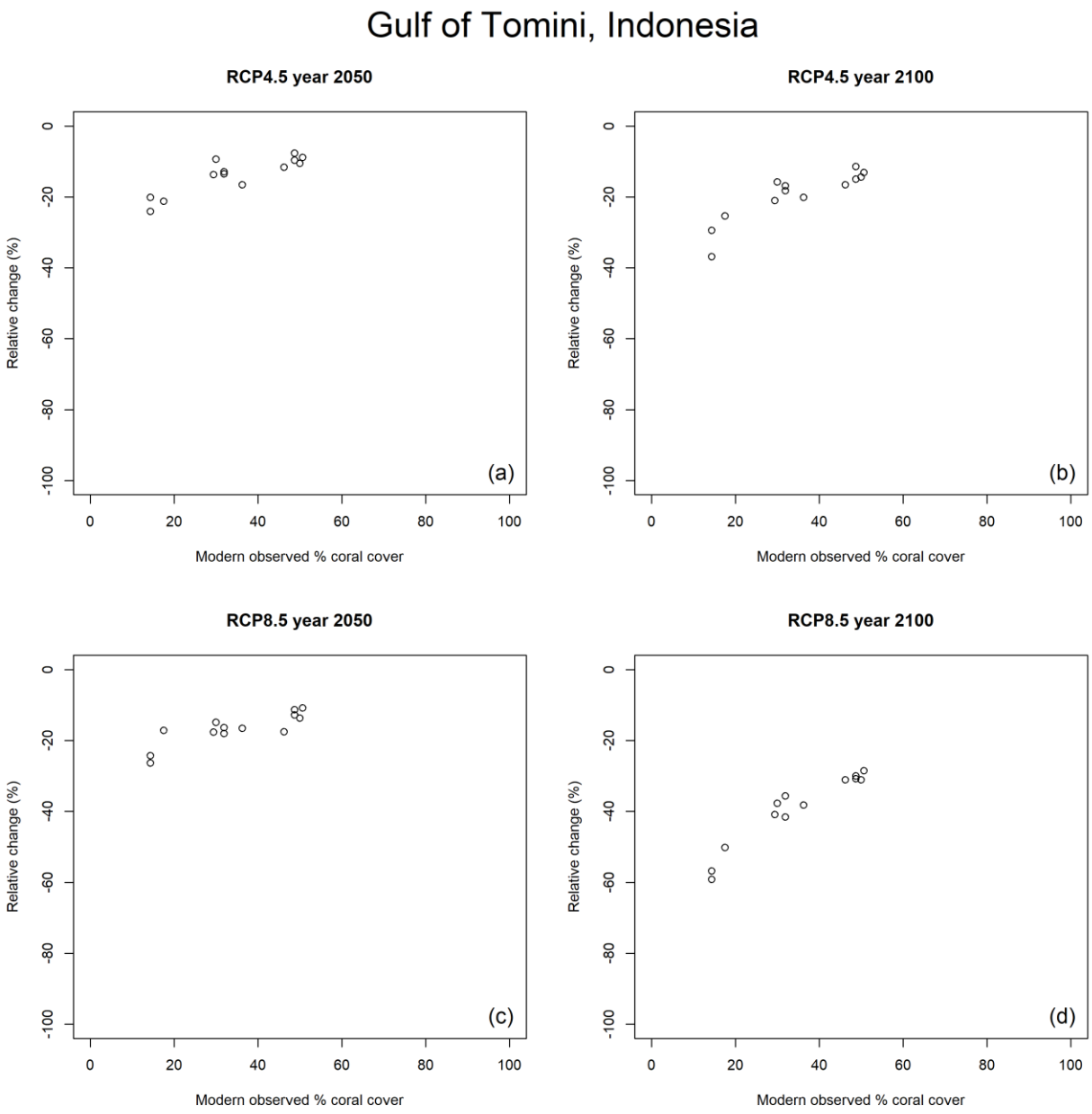

Figure S51. Relative change in percent coral cover in the Gulf of Tomini, Indonesia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

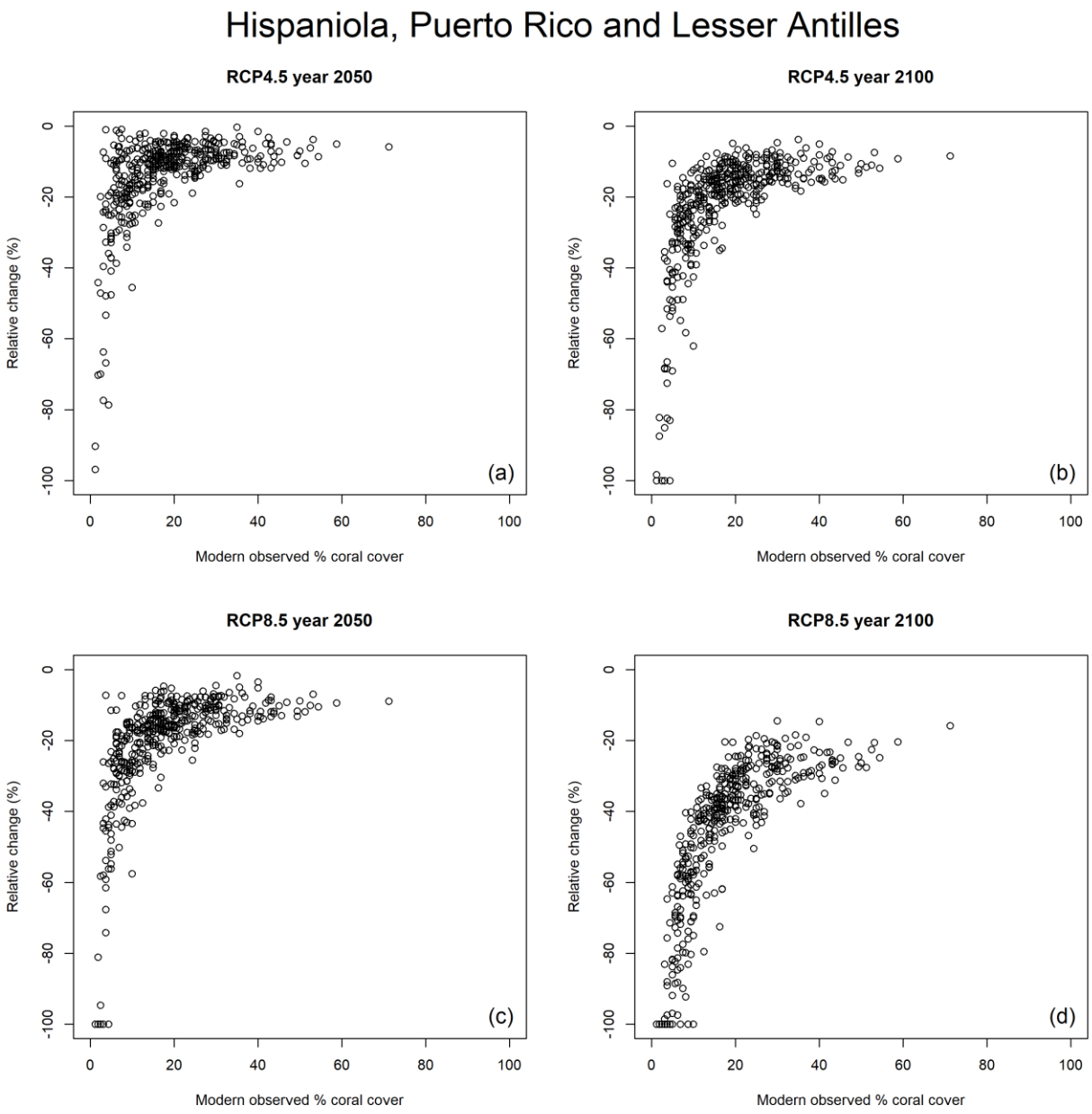

Figure S52. Relative change in percent coral cover in the Hispaniola, Puerto Rico, and Lesser Antilles ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

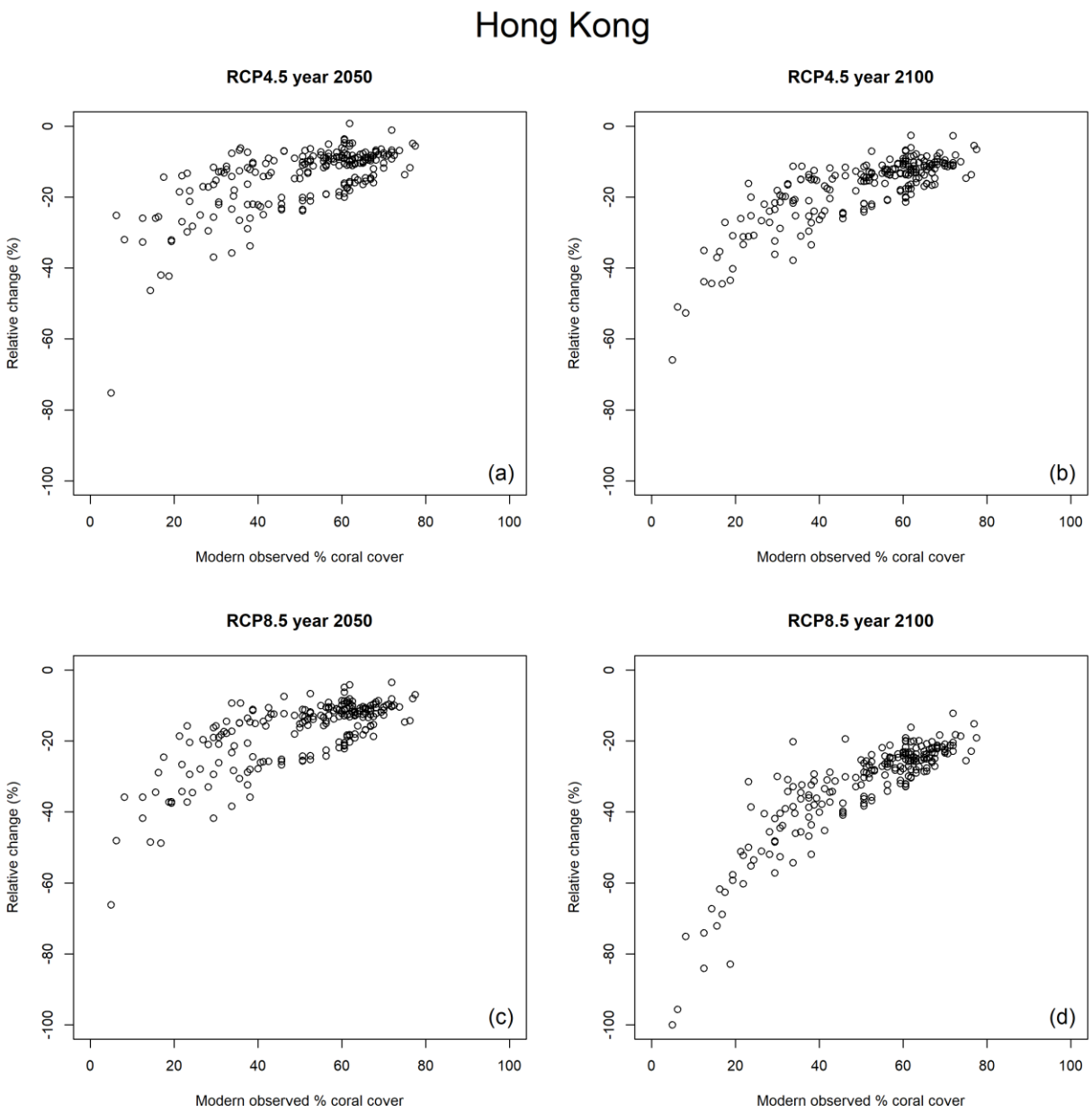

Figure S53. Relative change in percent coral cover in the Hong Kong ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

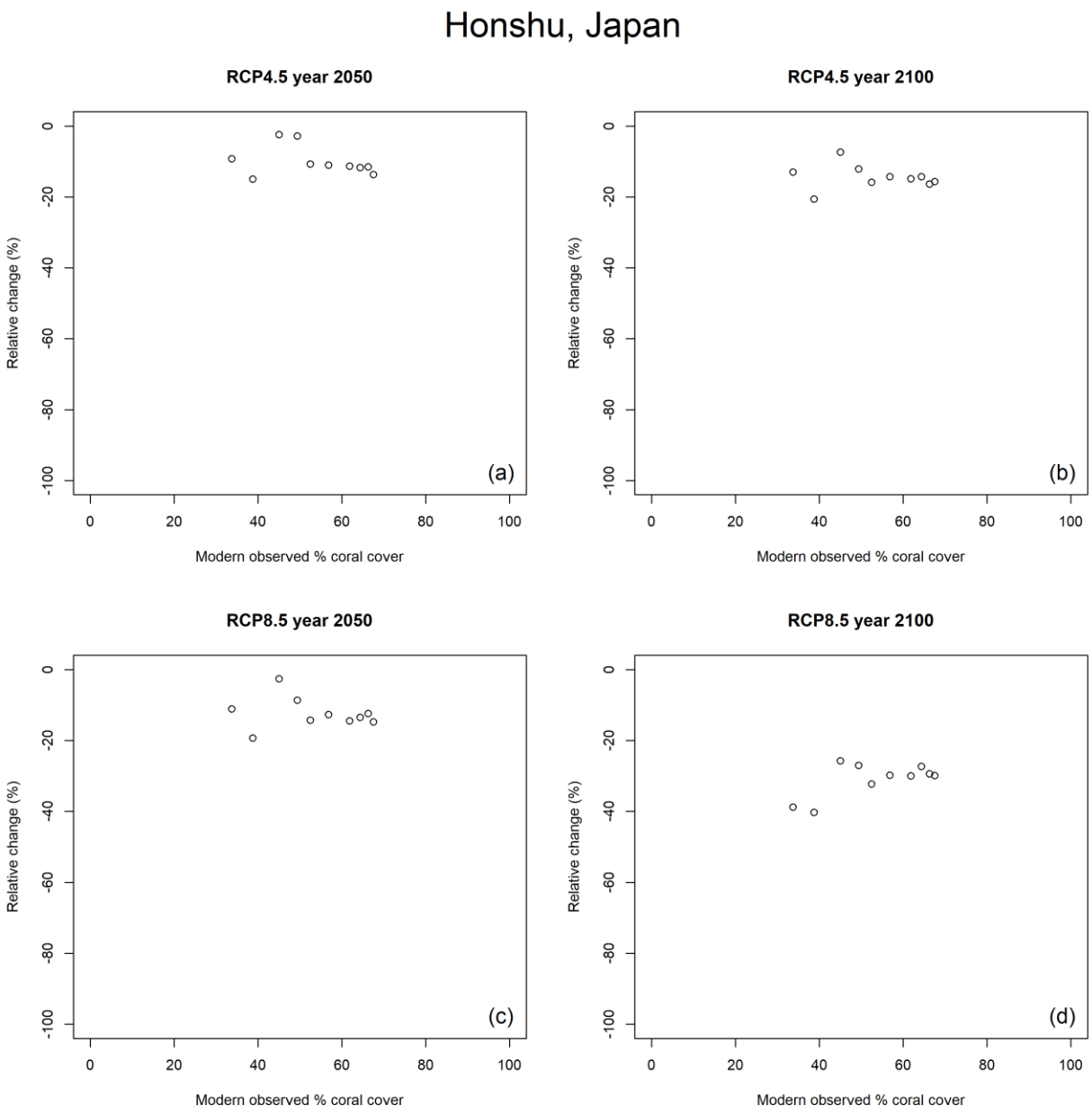

Figure S54. Relative change in percent coral cover in the Honshu, Japan ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

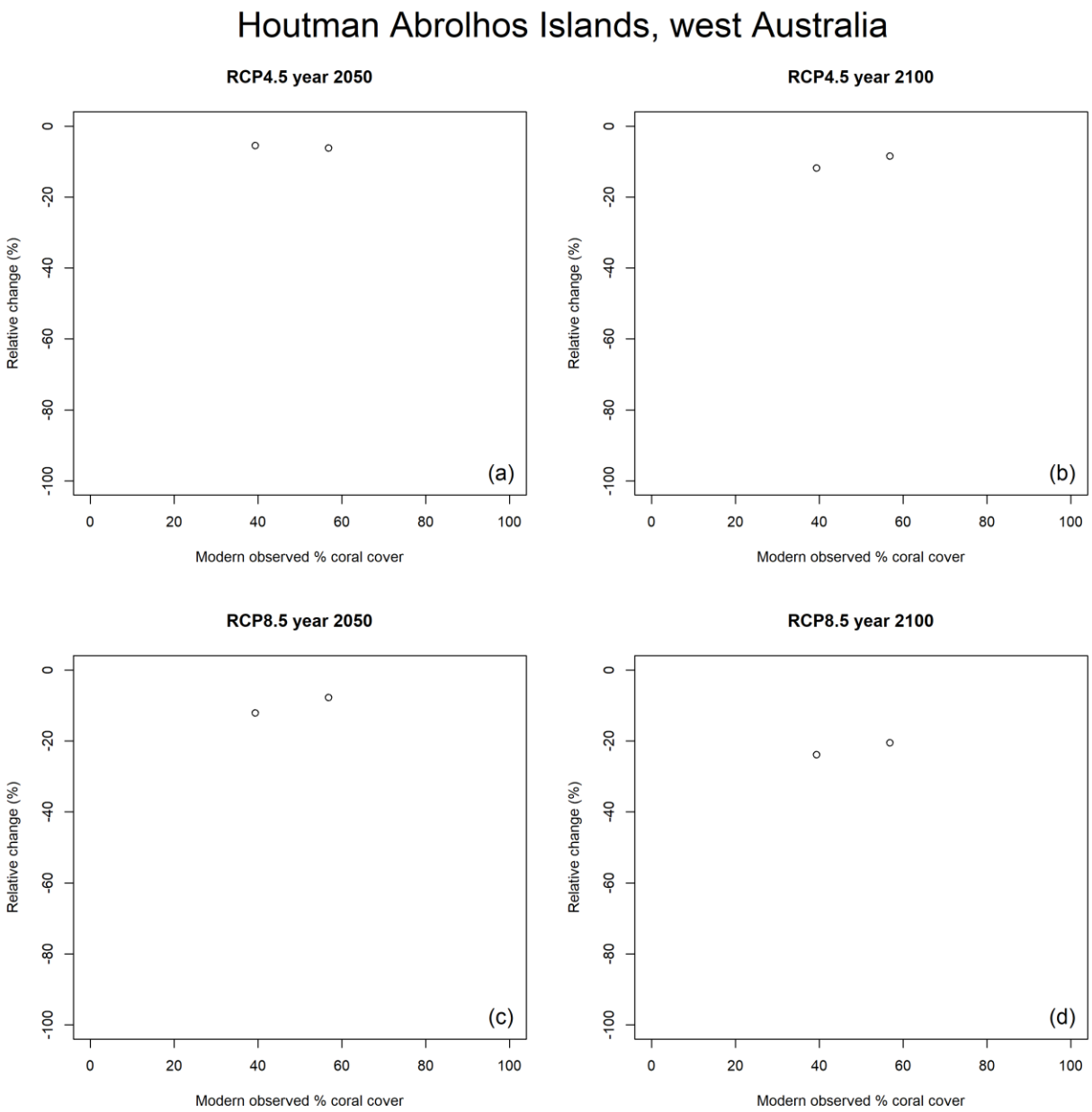

Figure S55. Relative change in percent coral cover in the Houtman Abrolhos Islands, west Australia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

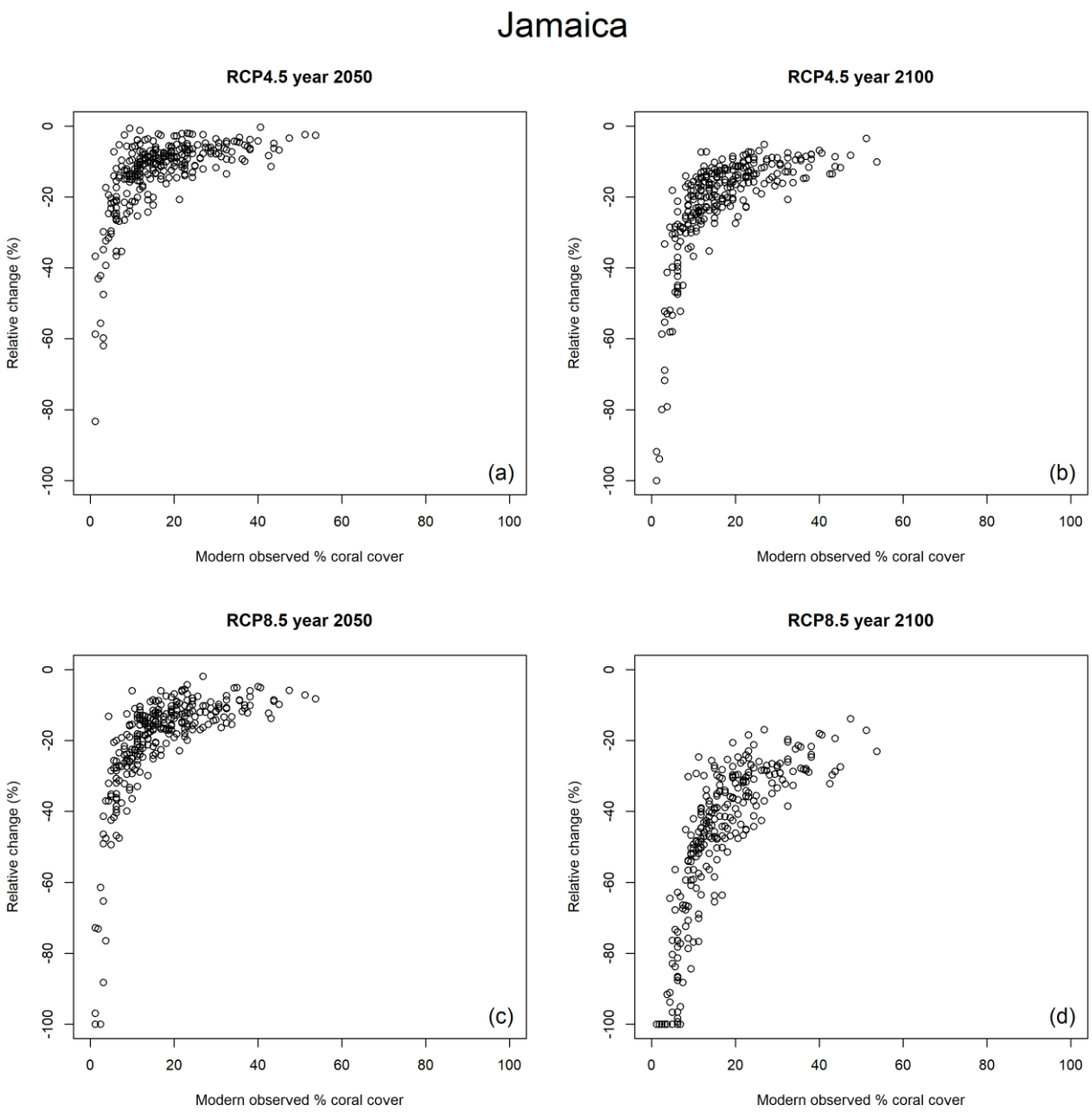

Figure S56. Relative change in percent coral cover in the Jamaica ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

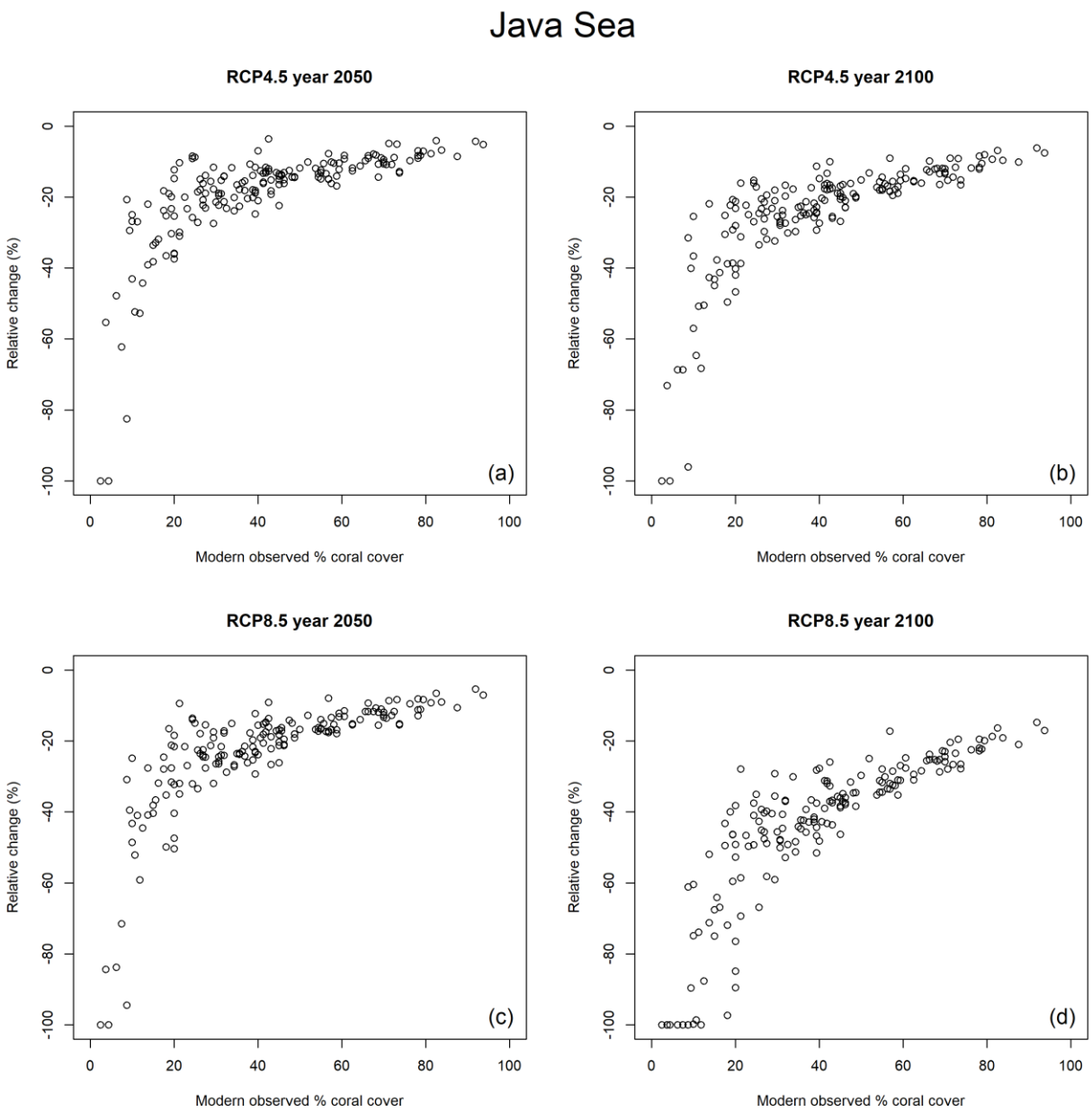

Figure S57. Relative change in percent coral cover in the Java Sea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

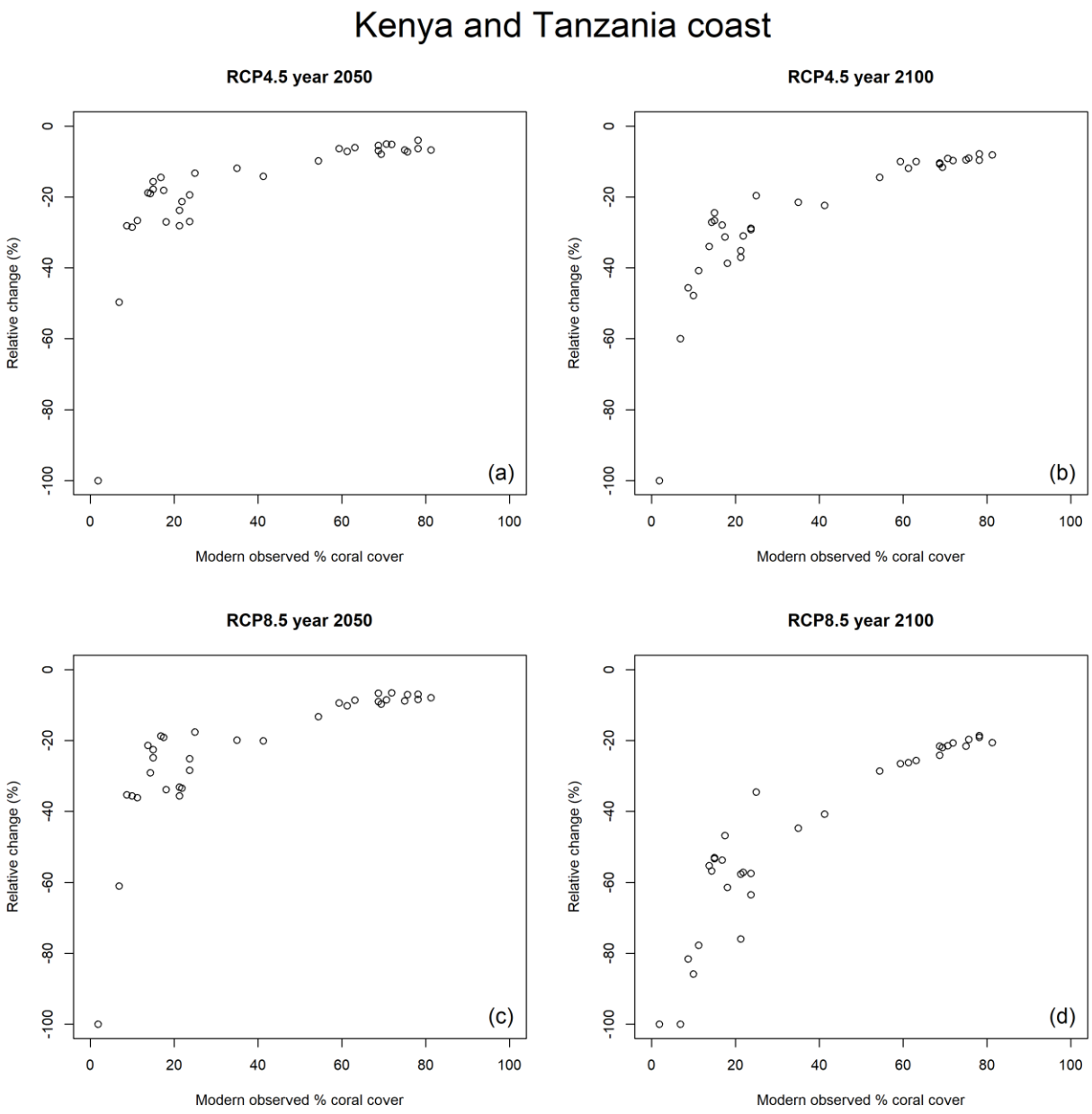

Figure S58. Relative change in percent coral cover in the Kenya and Tanzania coast ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

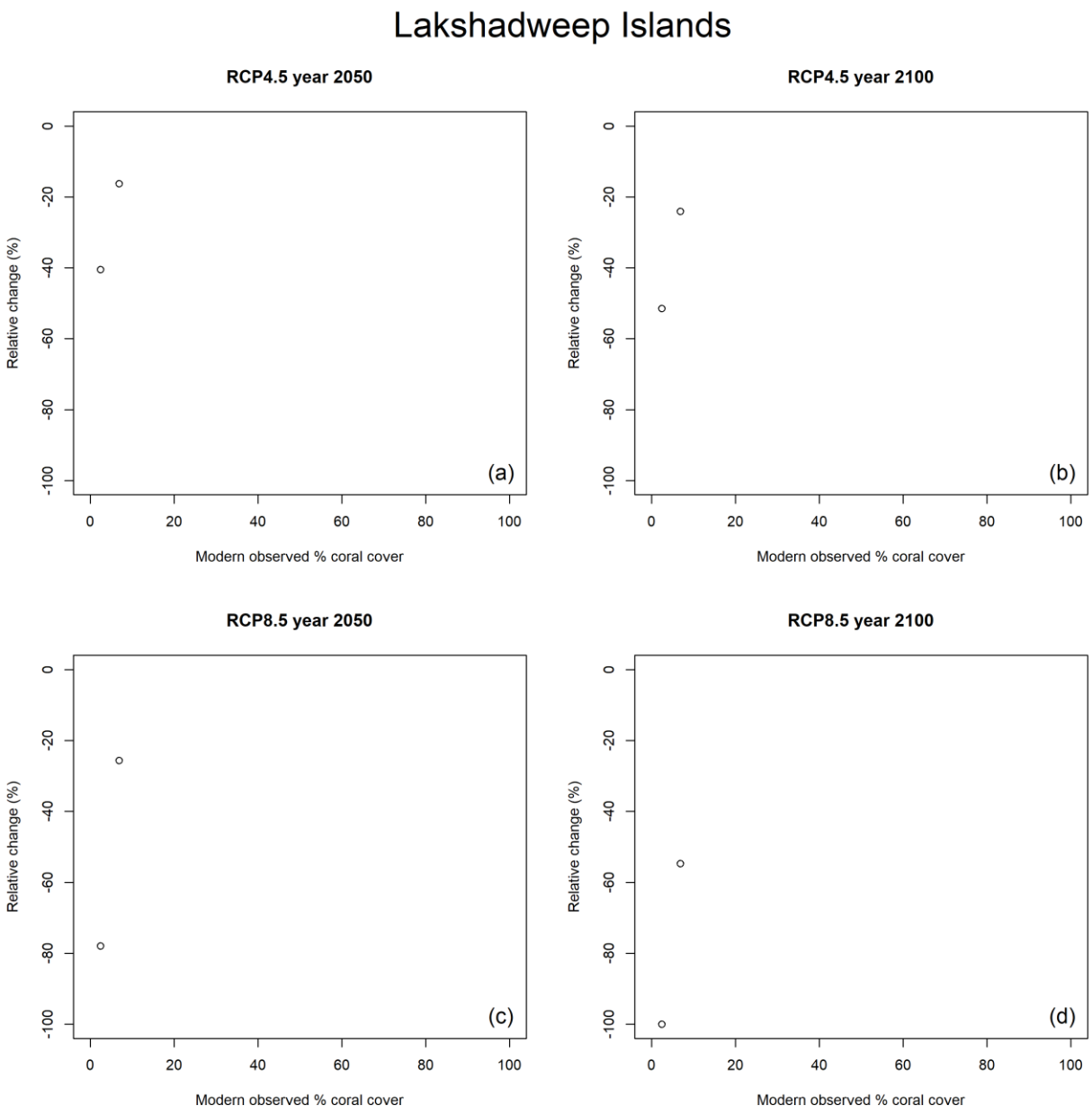

Figure S59. Relative change in percent coral cover in the Lakshadweep Islands ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

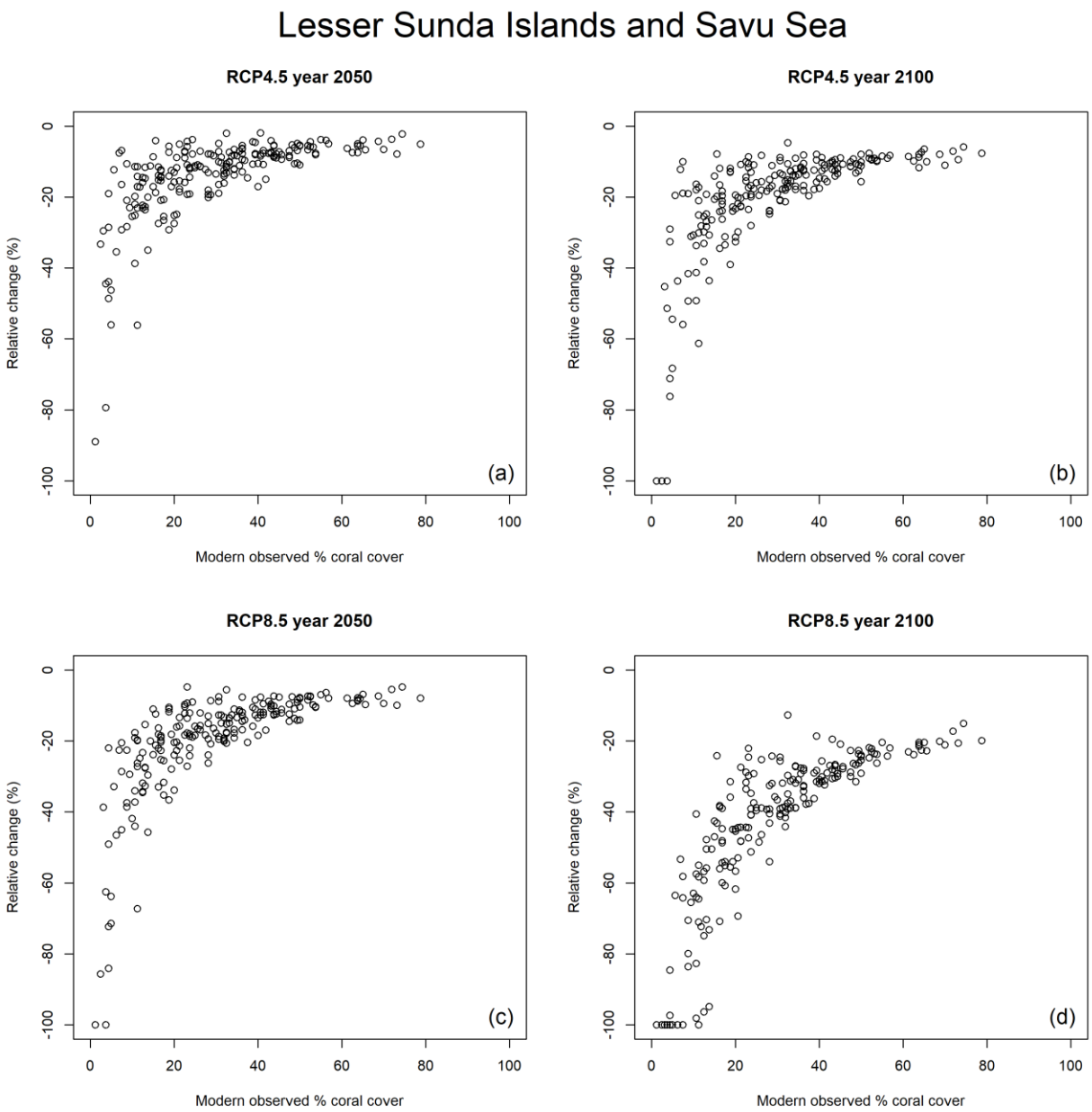

Figure S60. Relative change in percent coral cover in the Lesser Sunda Islands and Savu Sea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

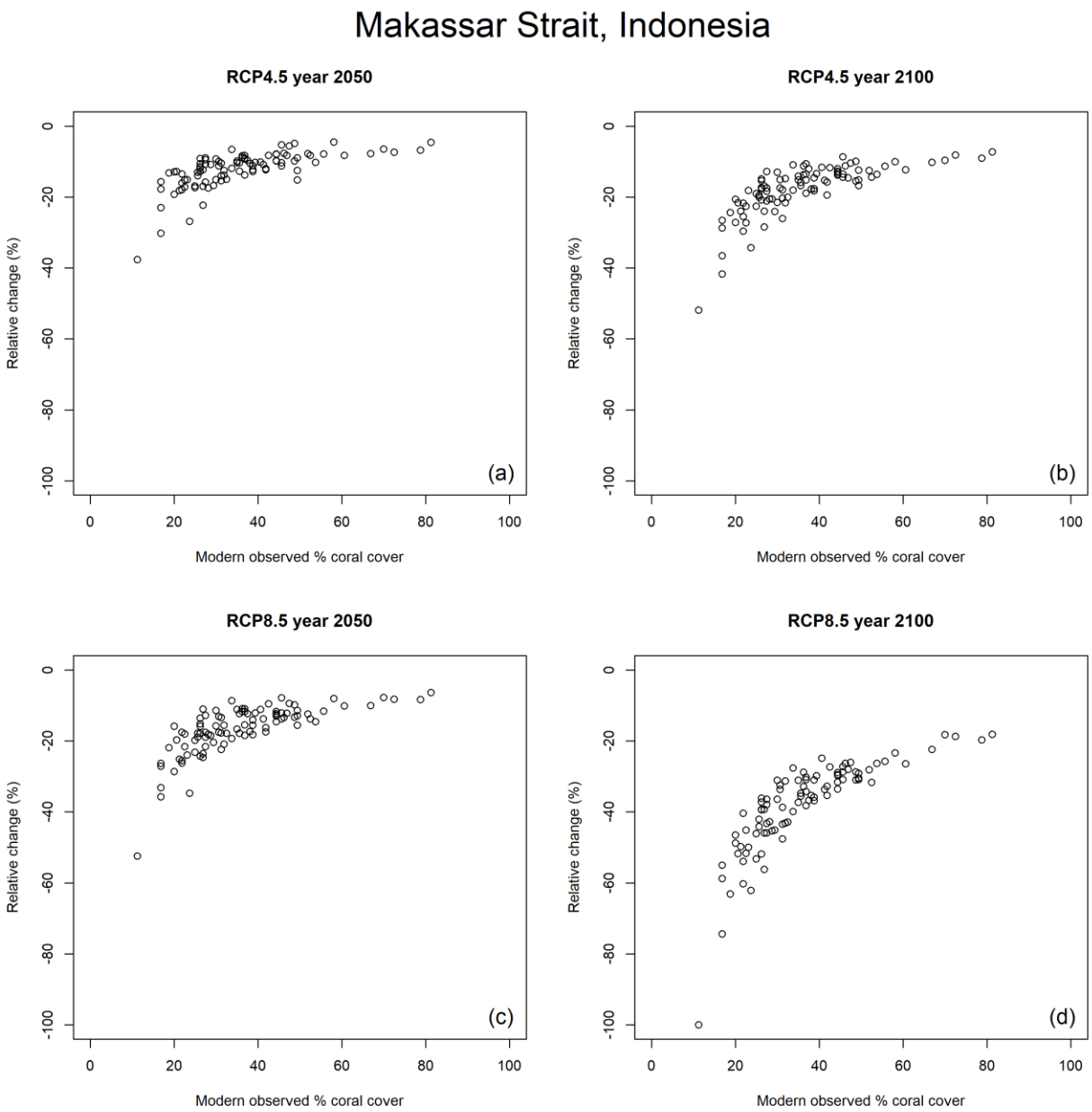

Figure S61. Relative change in percent coral cover in the Makassar Strait, Indonesia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

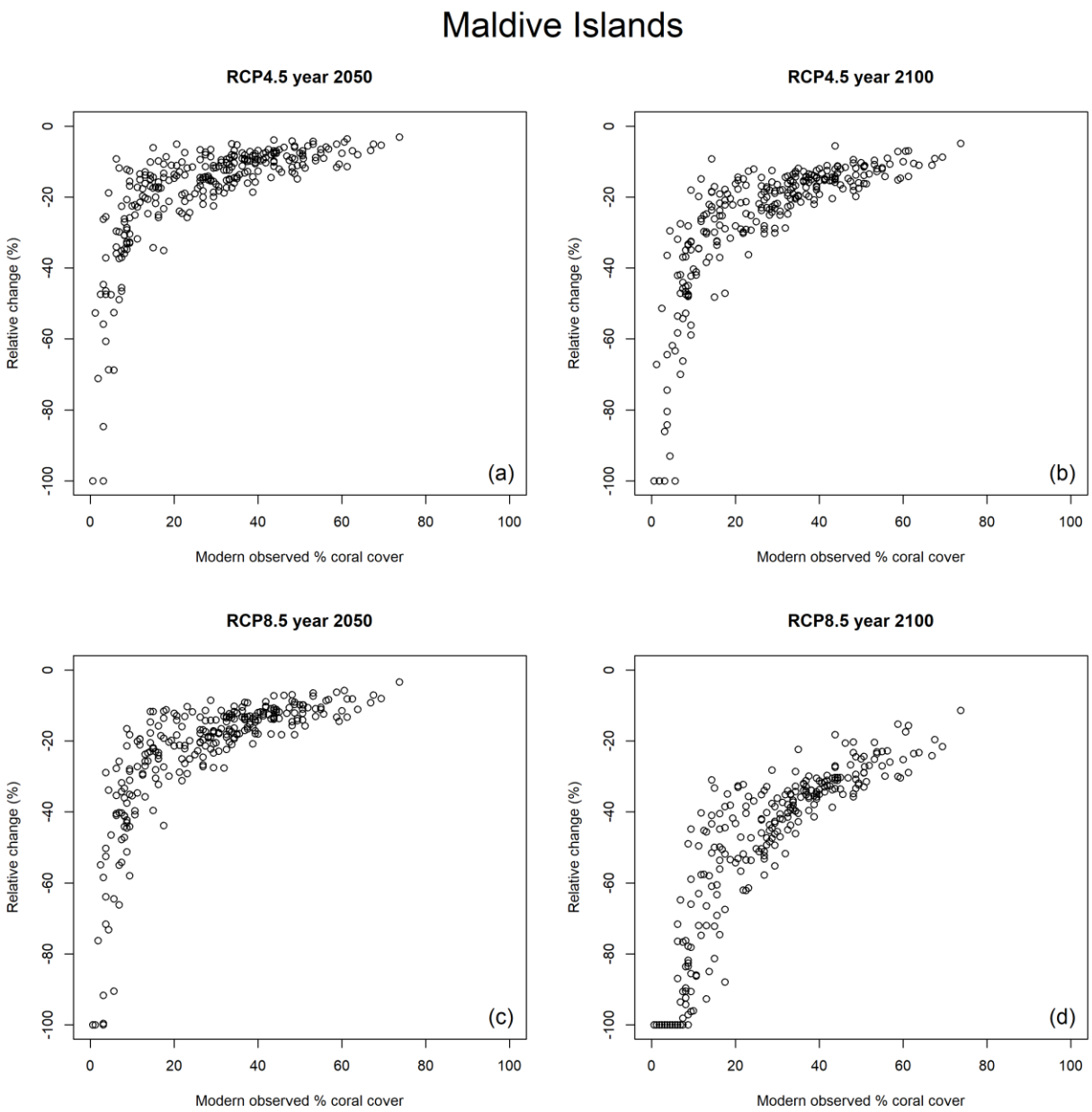

Figure S62. Relative change in percent coral cover in the Maldive Islands ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

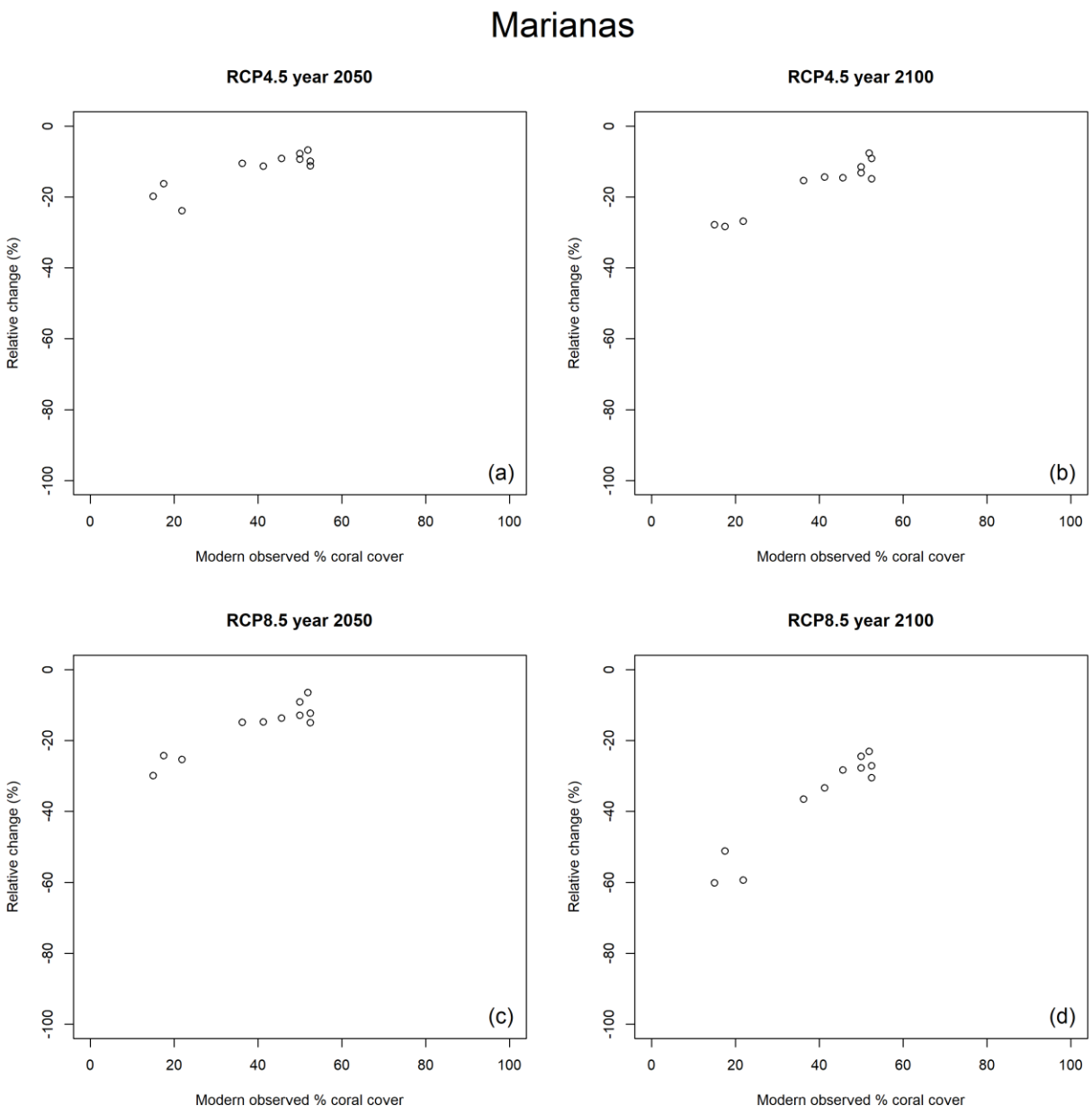

Figure S63. Relative change in percent coral cover in the Marianas ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

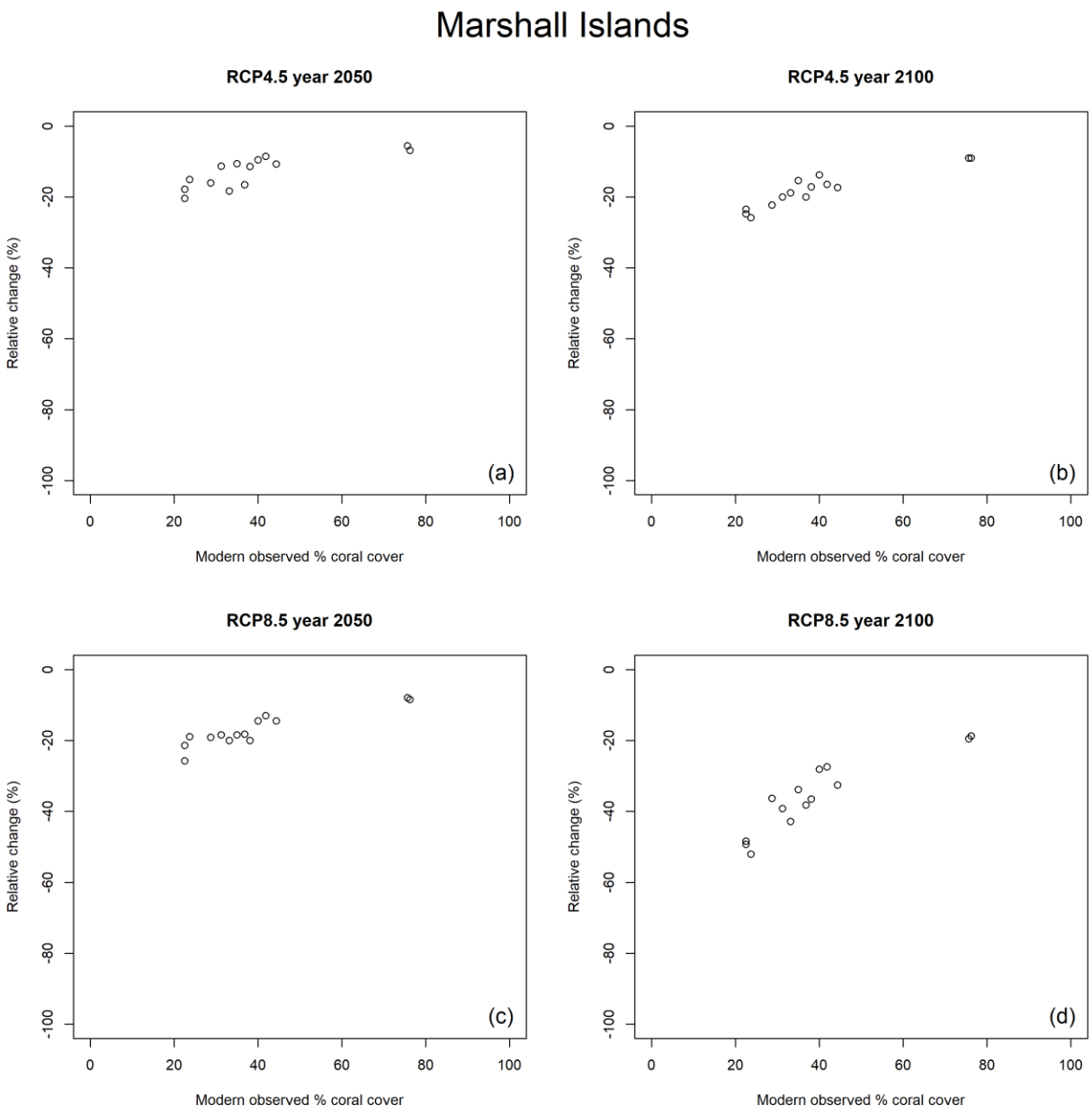

Figure S64. Relative change in percent coral cover in the Marshall Islands ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

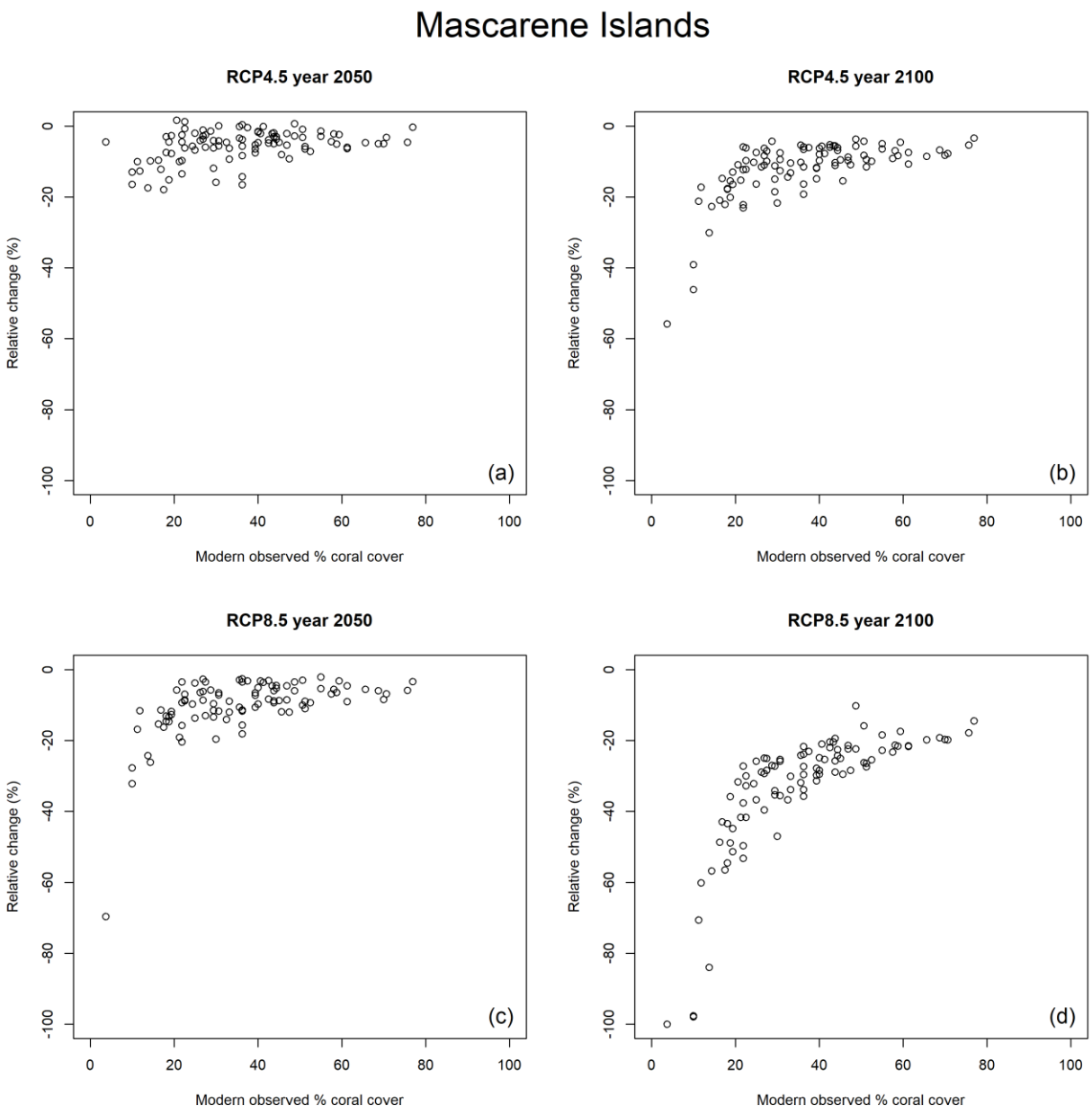

Figure S65. Relative change in percent coral cover in the Mascarene Islands ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

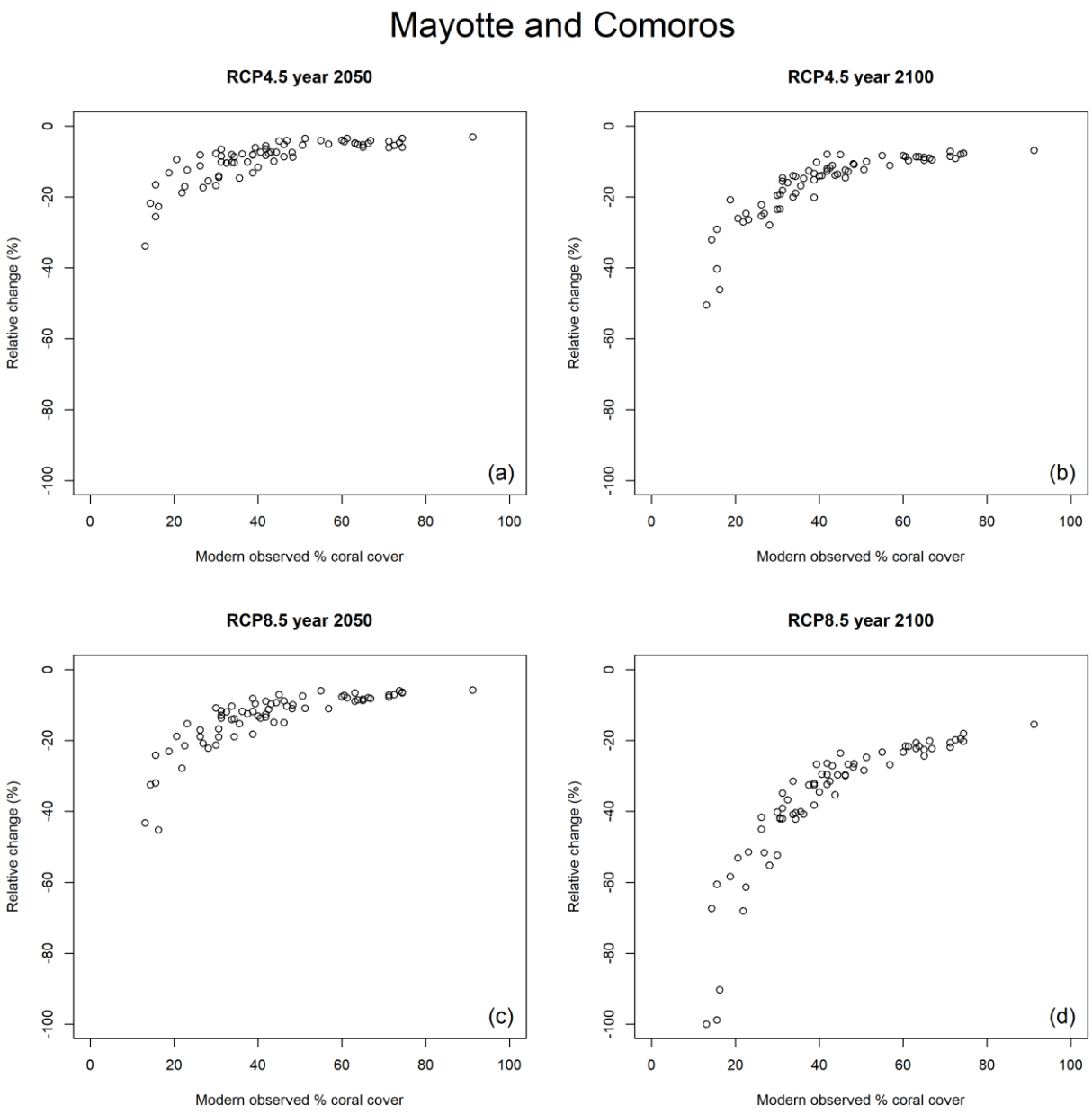

Figure S66. Relative change in percent coral cover in the Mayotte and Comoros ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

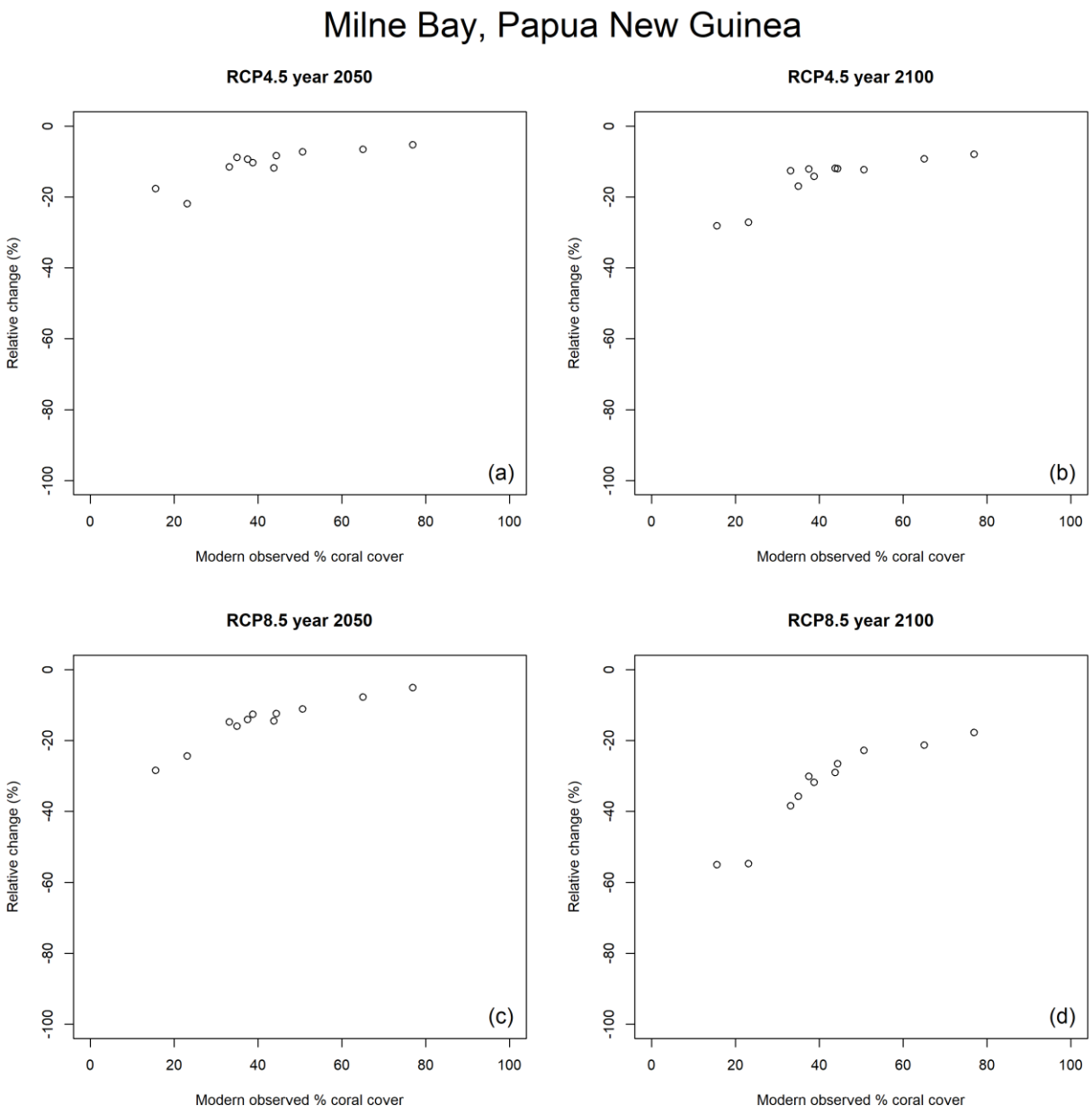

Figure S67. Relative change in percent coral cover in the Milne Bay, Papua New Guinea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

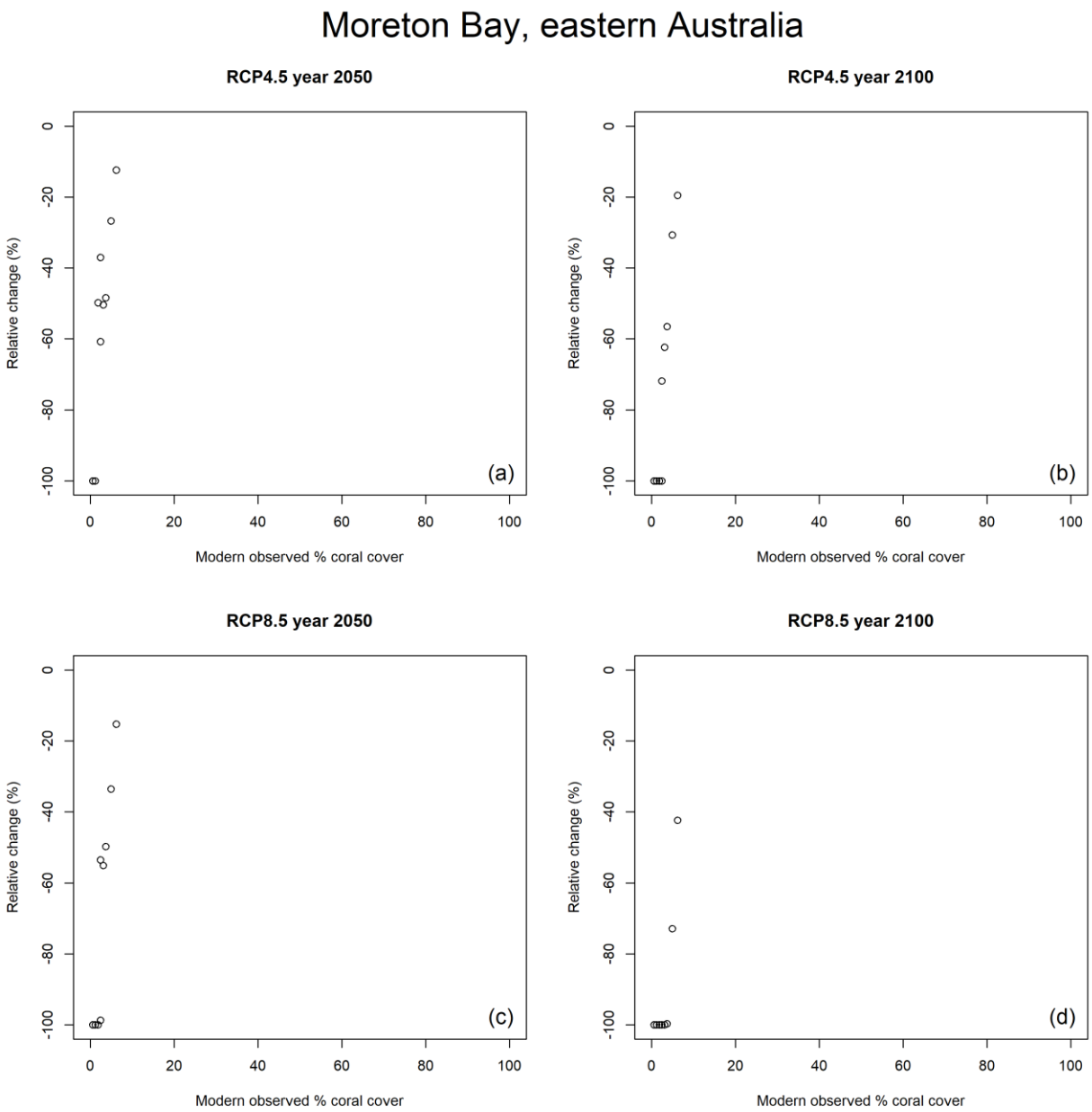

Figure S68. Relative change in percent coral cover in the Moreton Bay, eastern Australia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

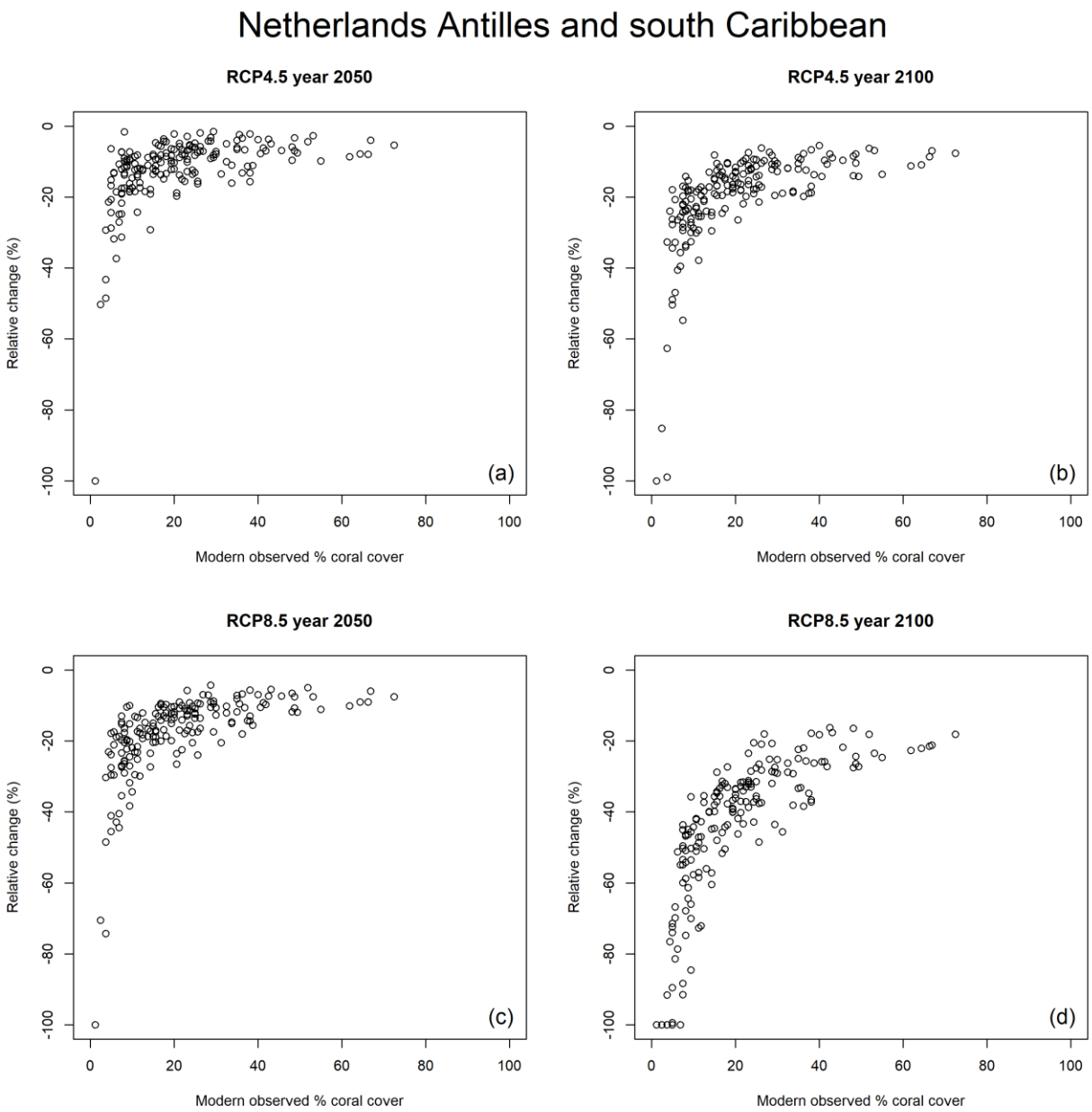

Figure S69. Relative change in percent coral cover in the Netherlands Antilles and south Caribbean ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

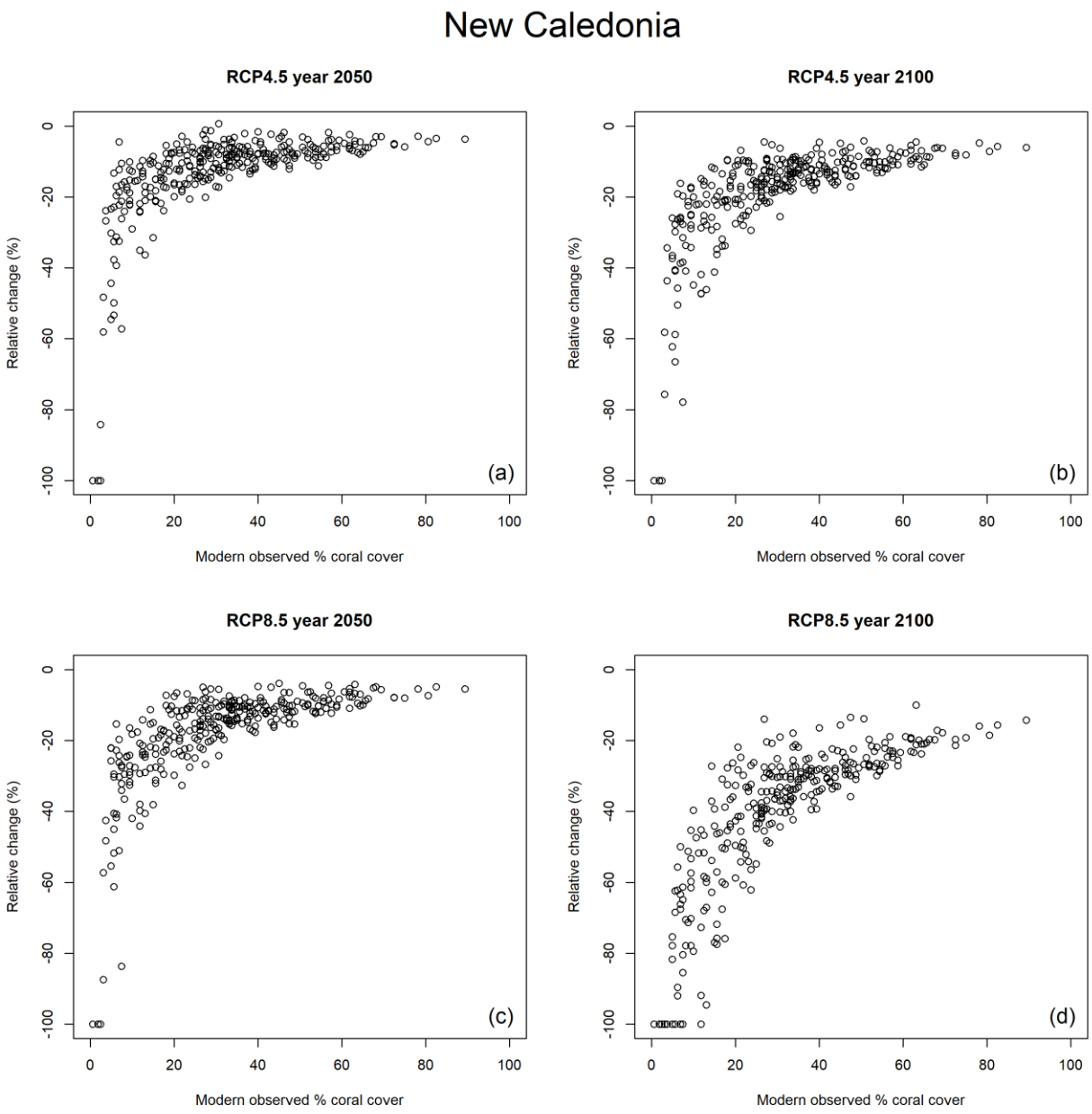

Figure S70. Relative change in percent coral cover in the New Caledonia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

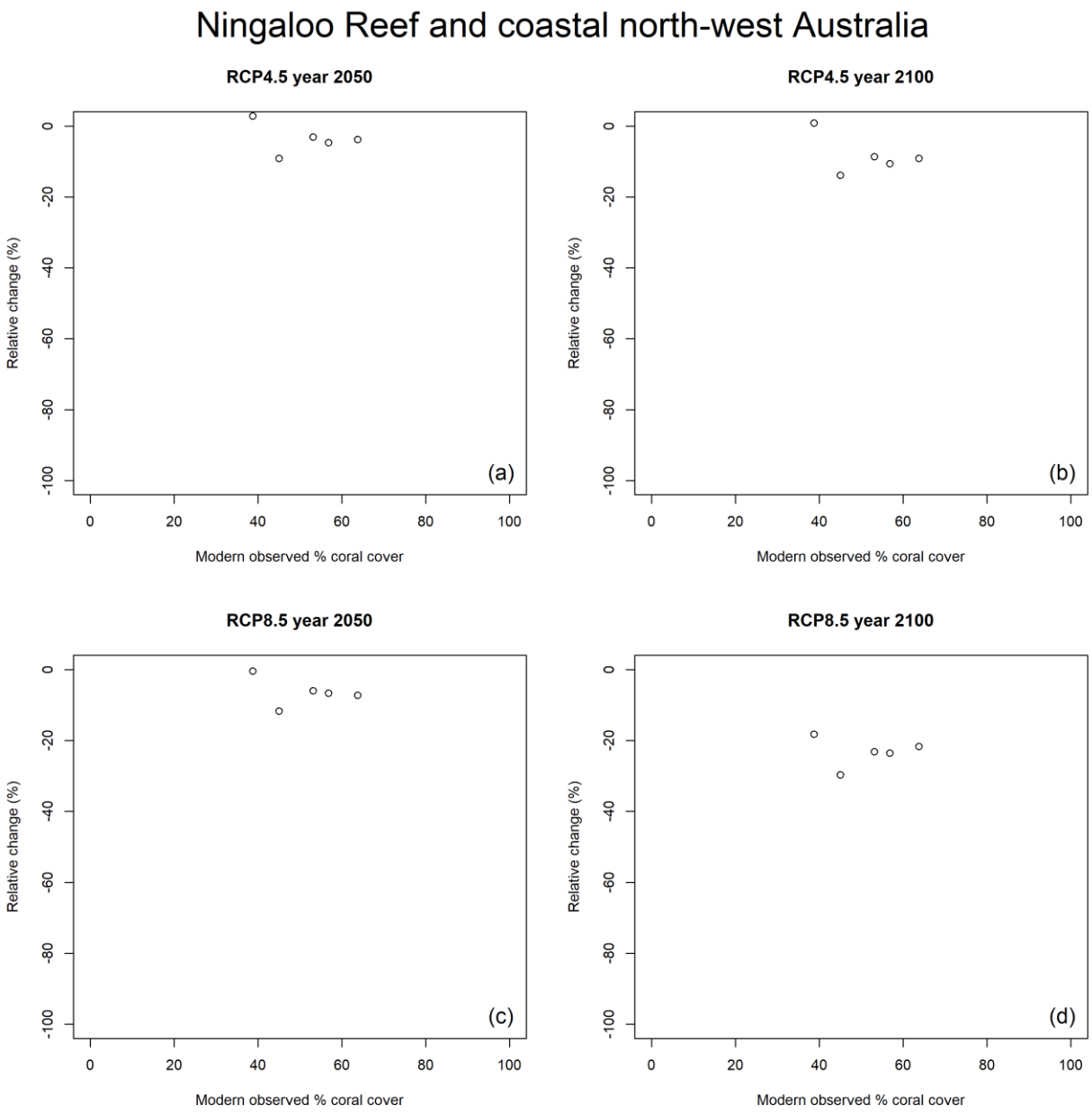

Figure S71. Relative change in percent coral cover in the Ningaloo Reef and coastal north-west Australia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

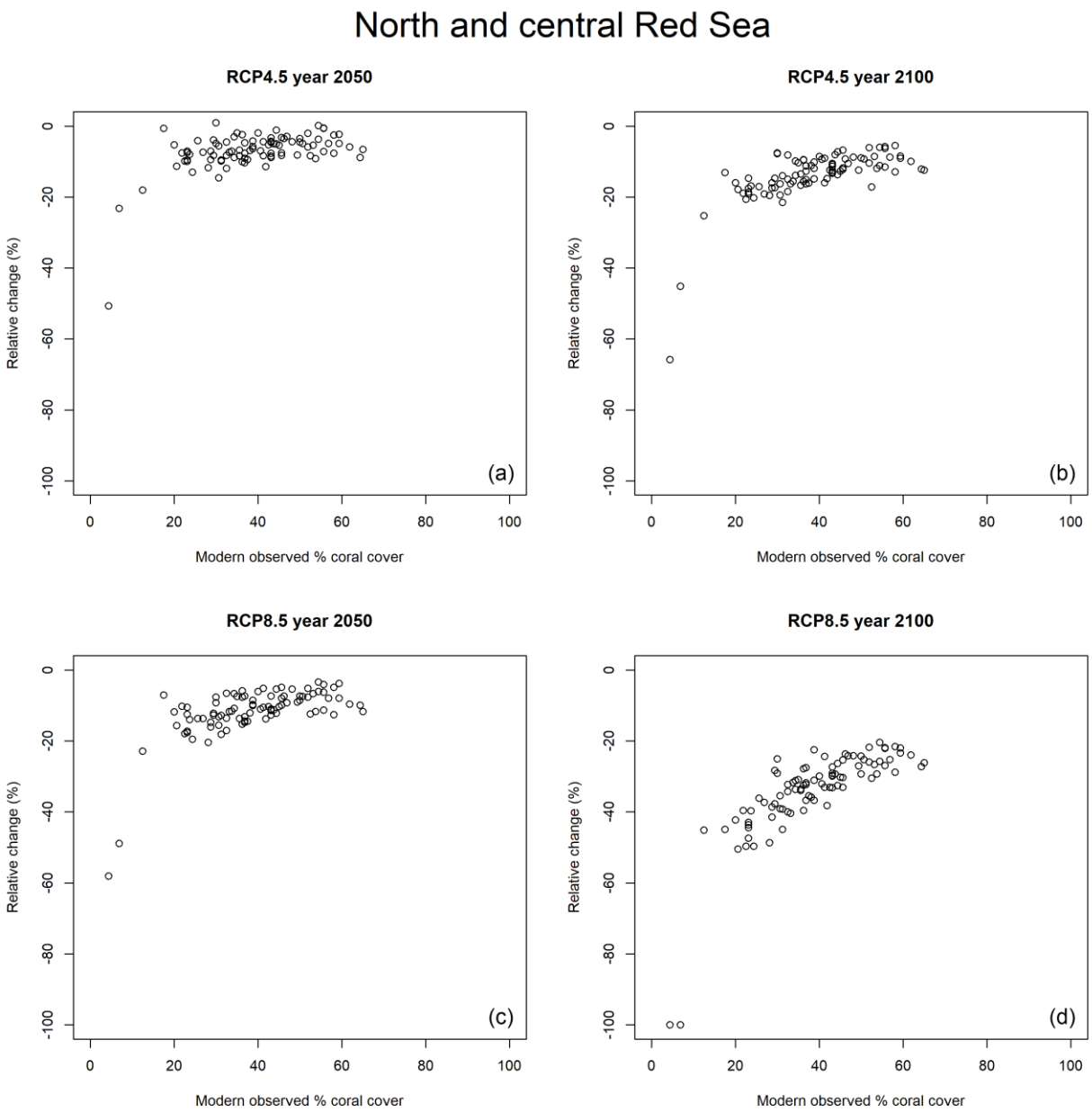

Figure S72. Relative change in percent coral cover in the north and central Red Sea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

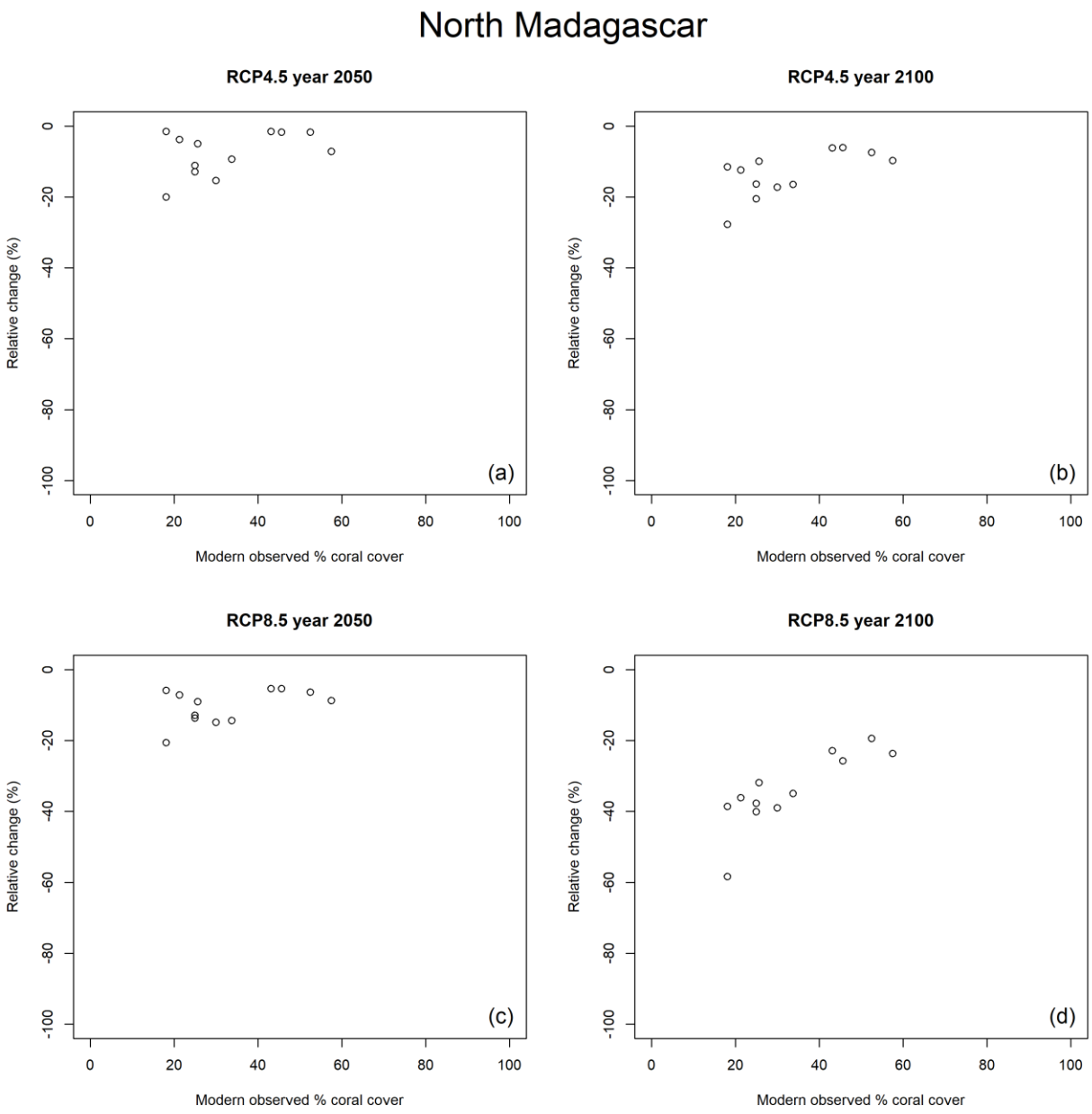

Figure S73. Relative change in percent coral cover in the north Madagascar ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

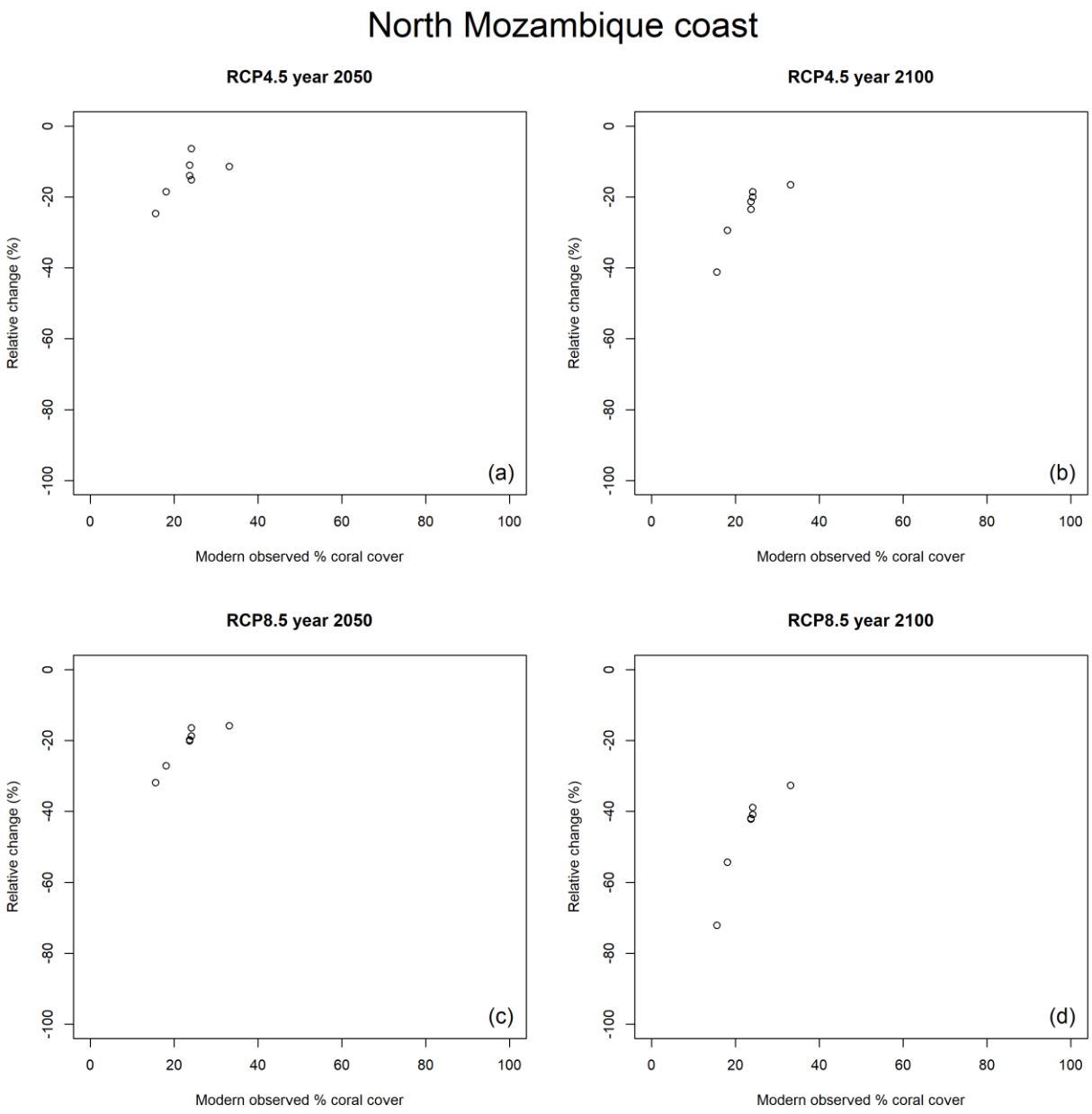

Figure S74. Relative change in percent coral cover in the north Mozambique coast ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

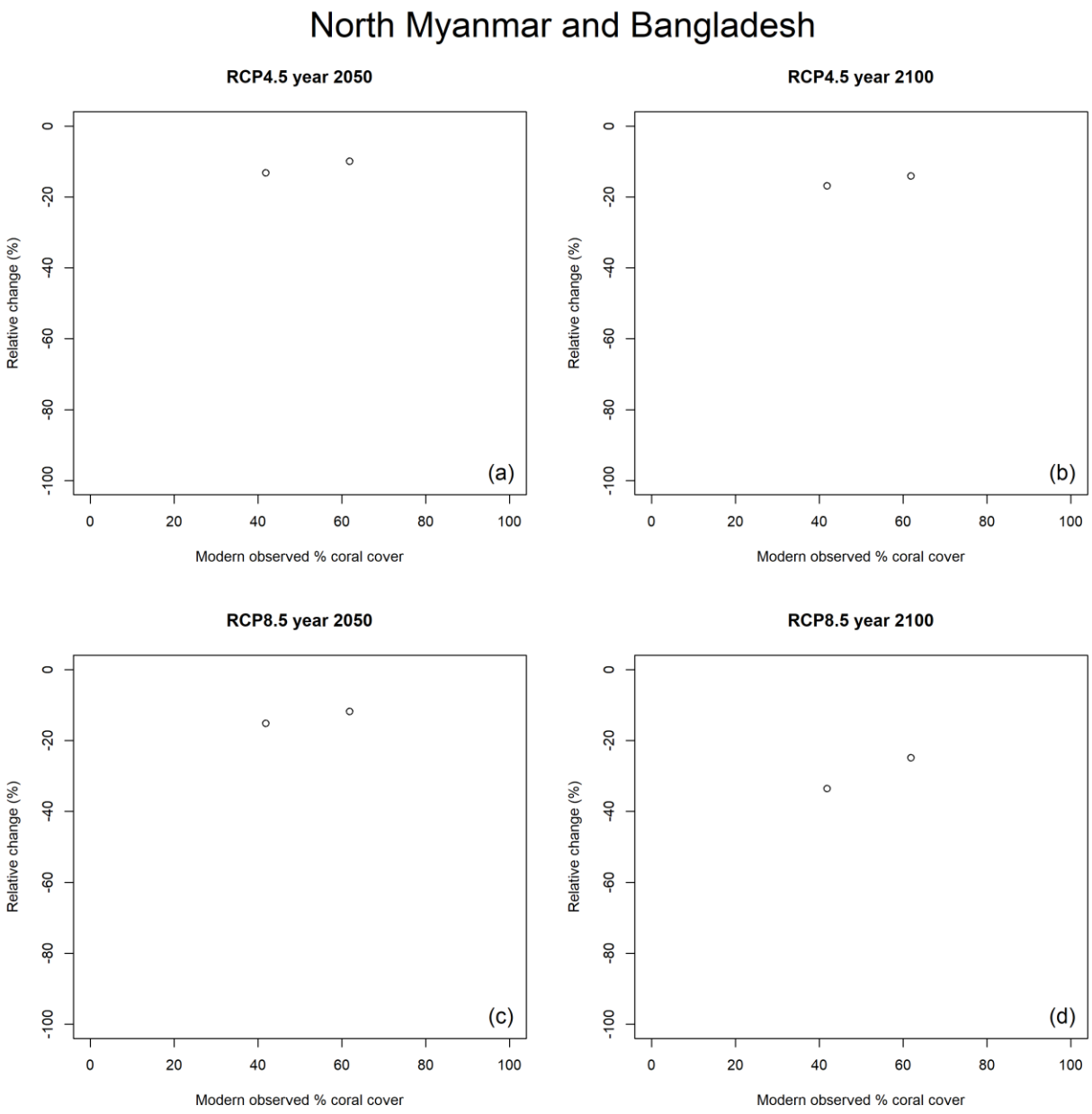

Figure S75. Relative change in percent coral cover in the north Myanmar and Bangladesh ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

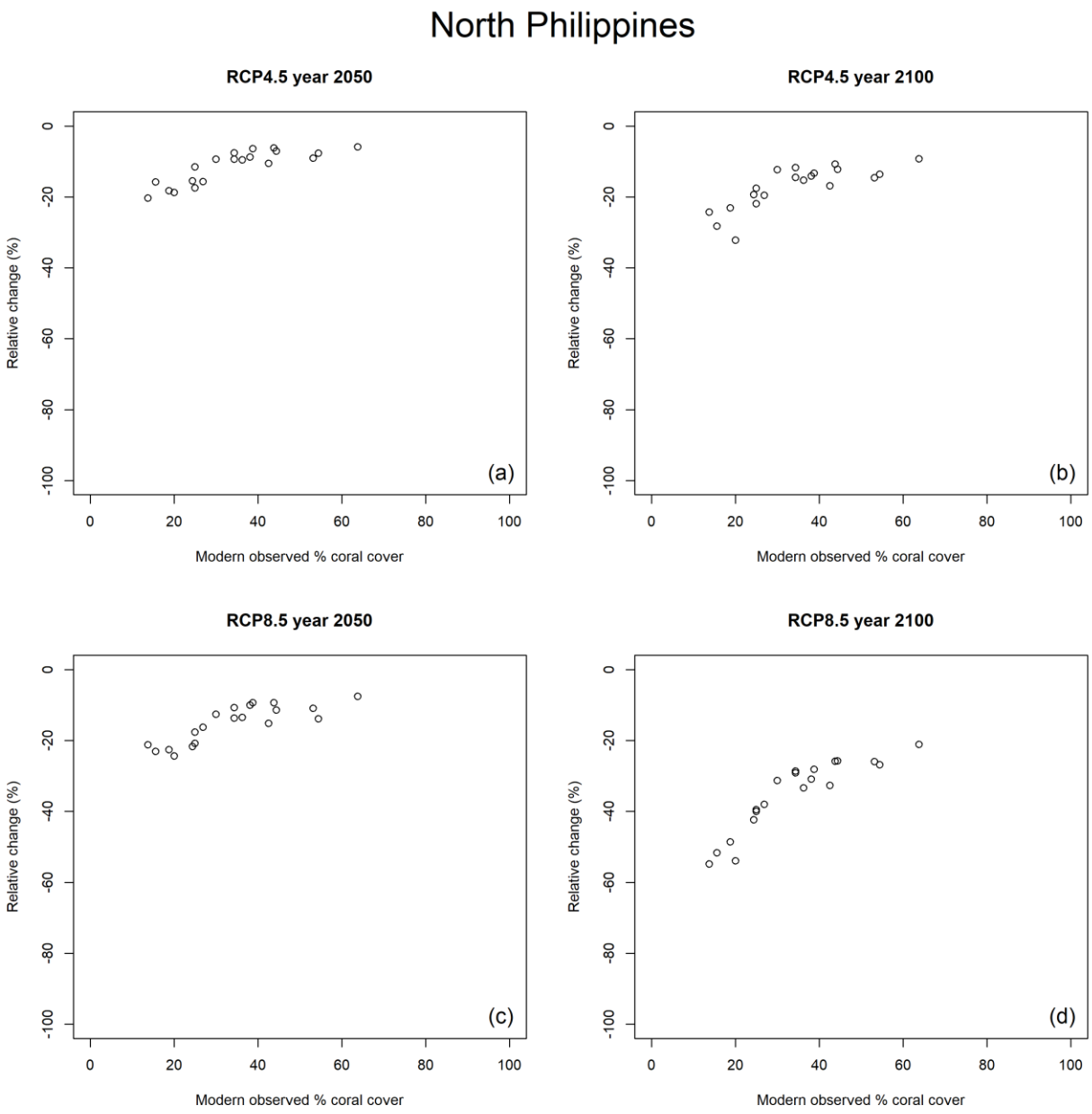

Figure S76. Relative change in percent coral cover in the north Philippines ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

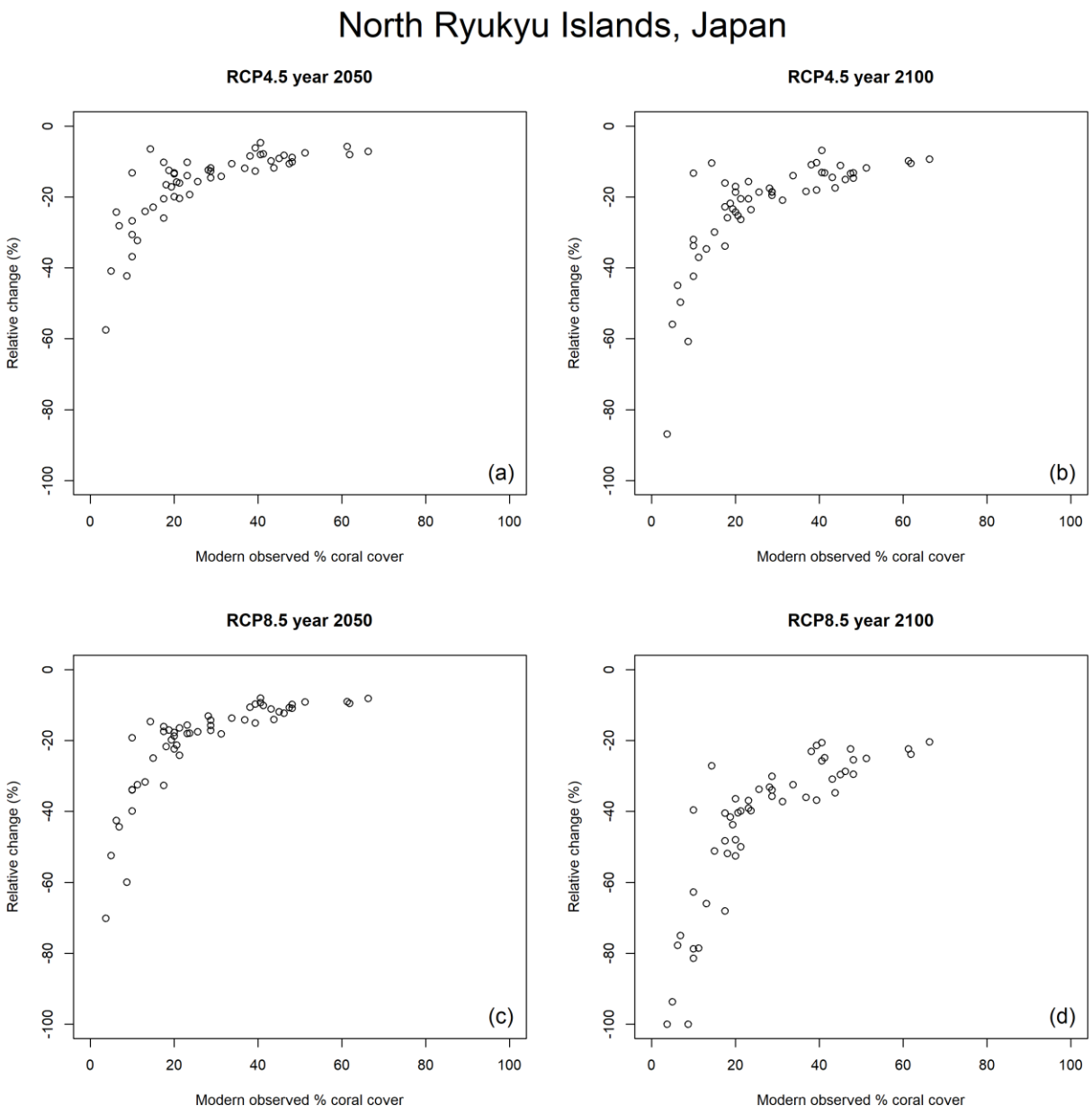

Figure S77. Relative change in percent coral cover in the north Ryukyu Islands, Japan ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

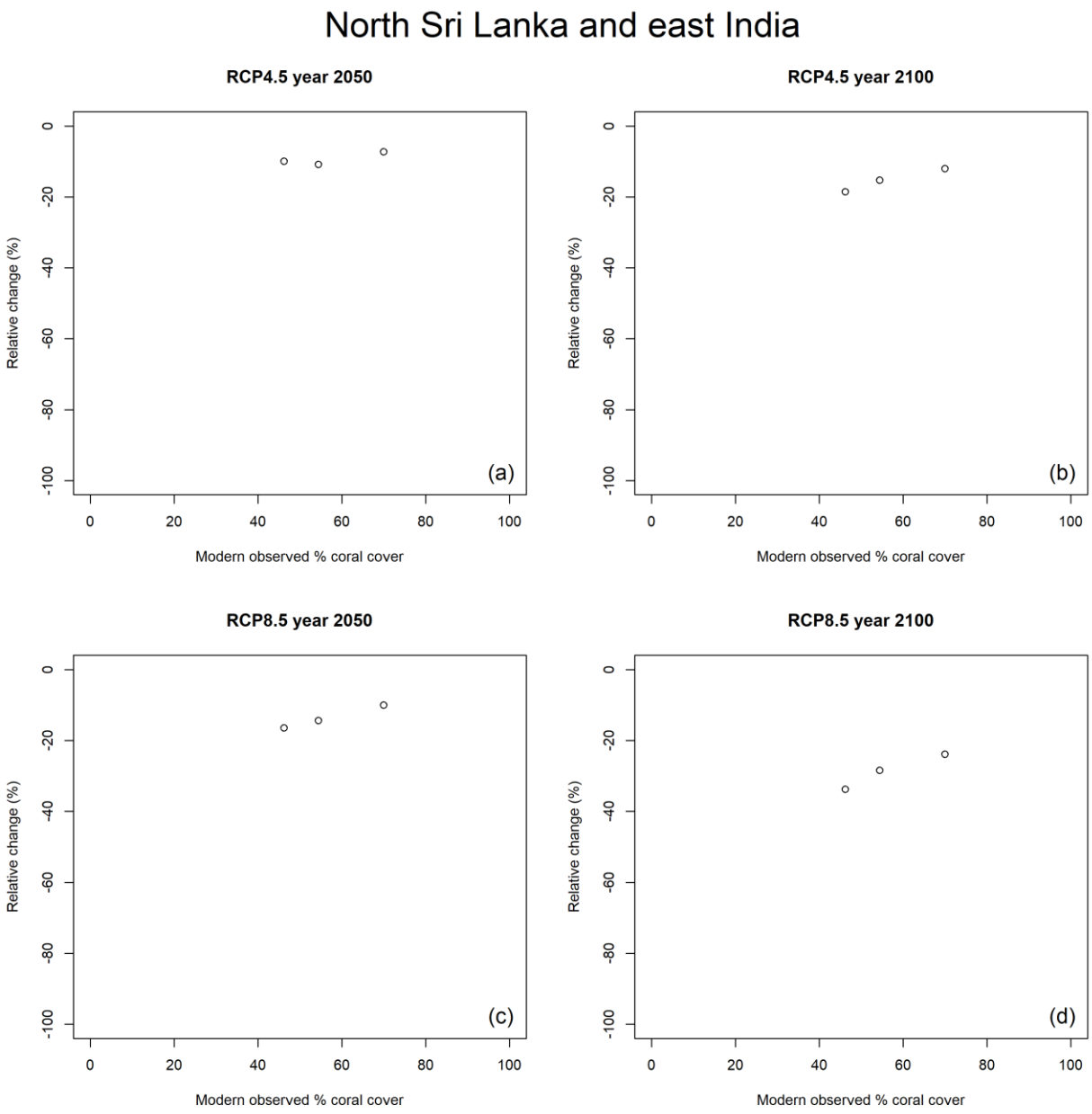

Figure S78. Relative change in percent coral cover in the north Sri Lanka and east India ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

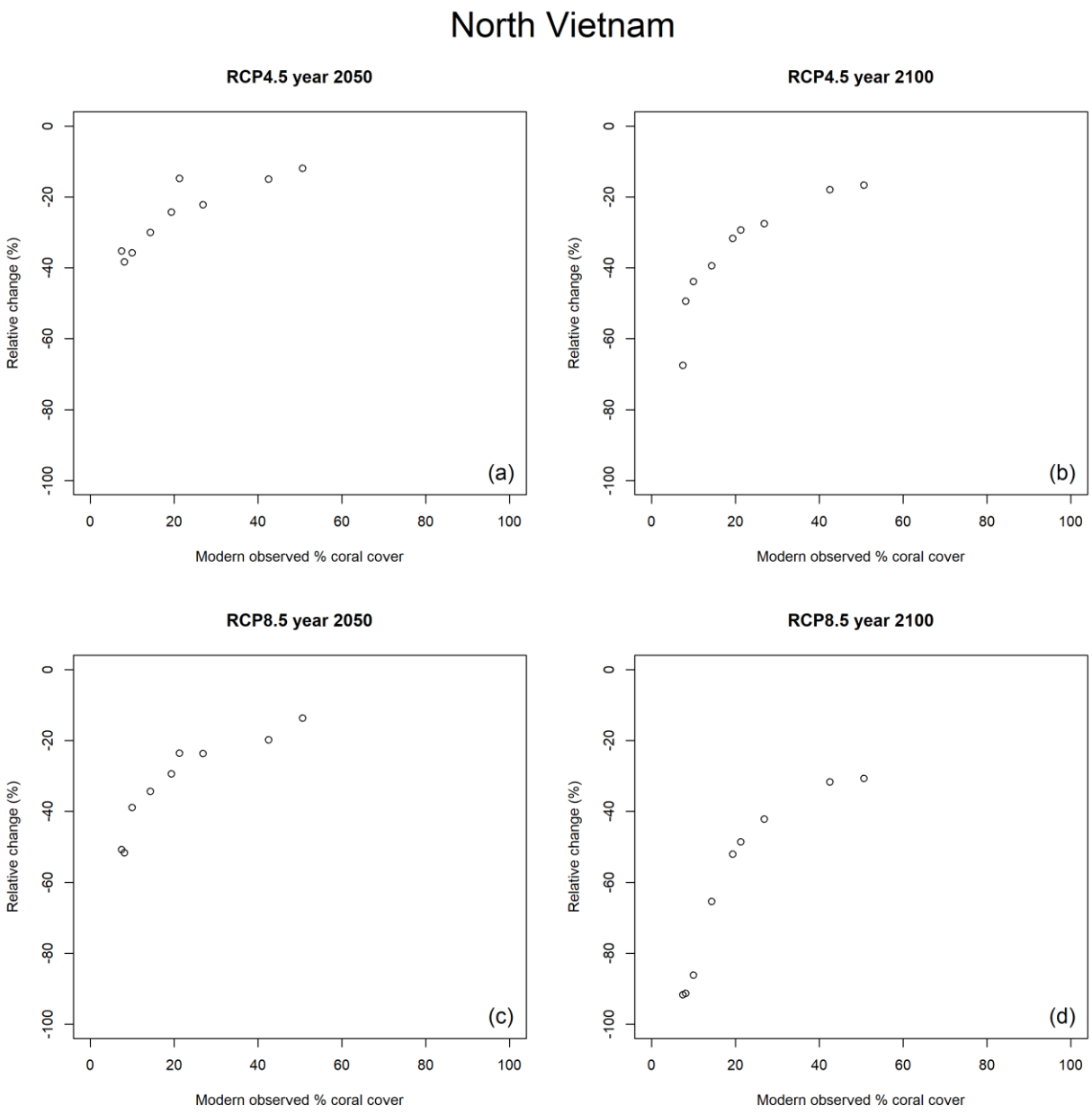

Figure S79. Relative change in percent coral cover in the north Vietnam ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

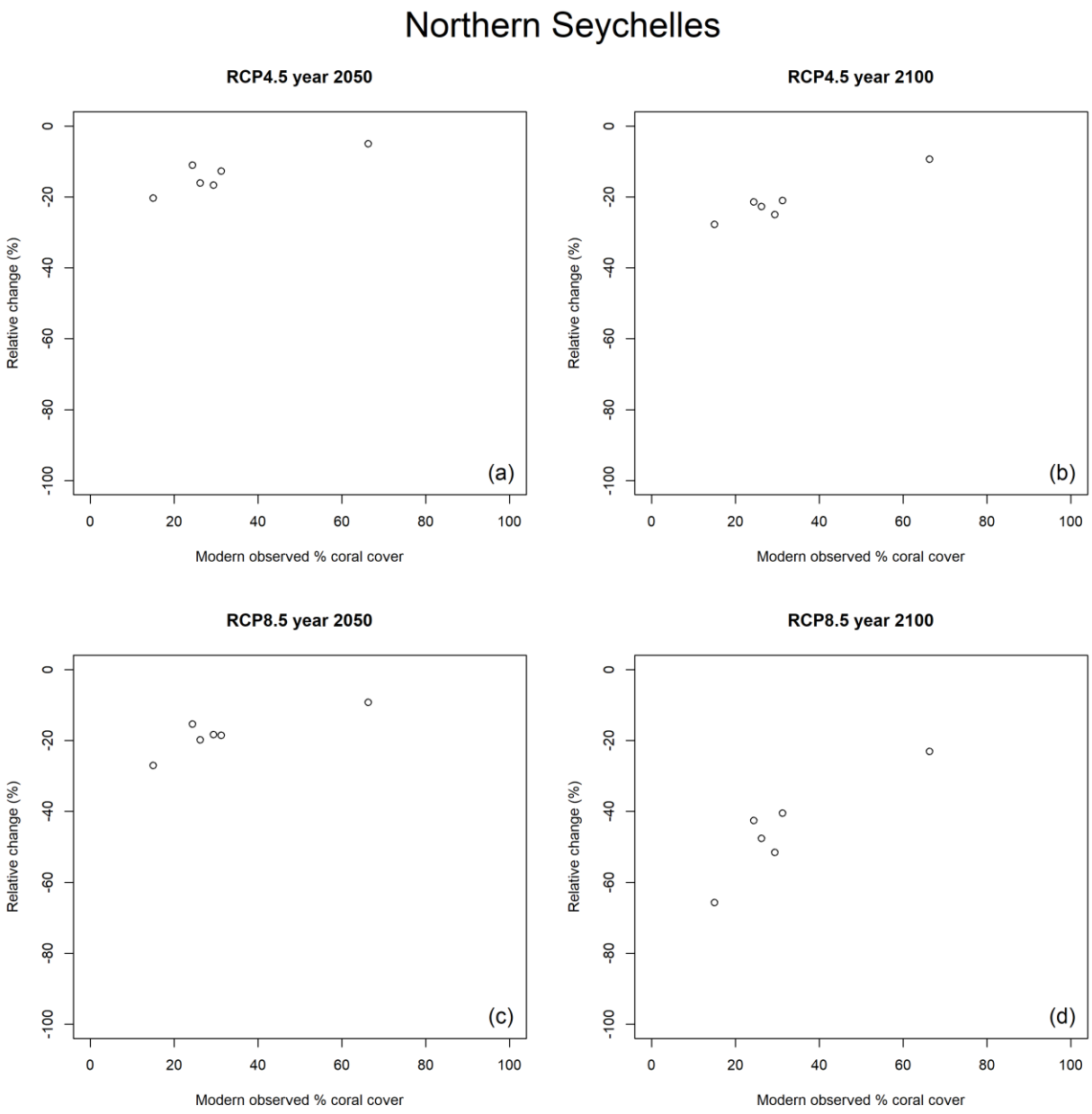

Figure S80. Relative change in percent coral cover in the northern Seychelles ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

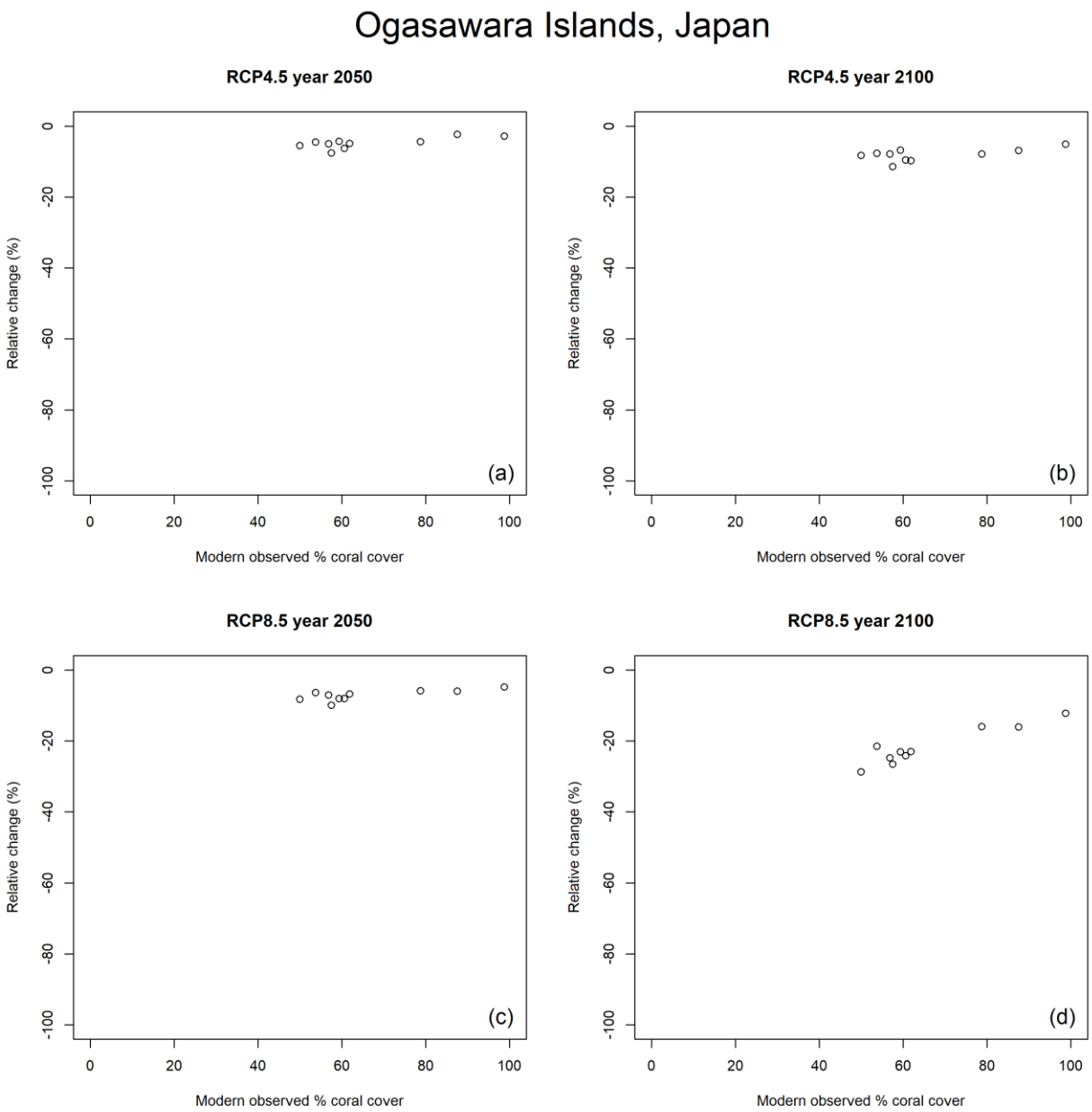

Figure S81. Relative change in percent coral cover in the Ogasawara Islands, Japan ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

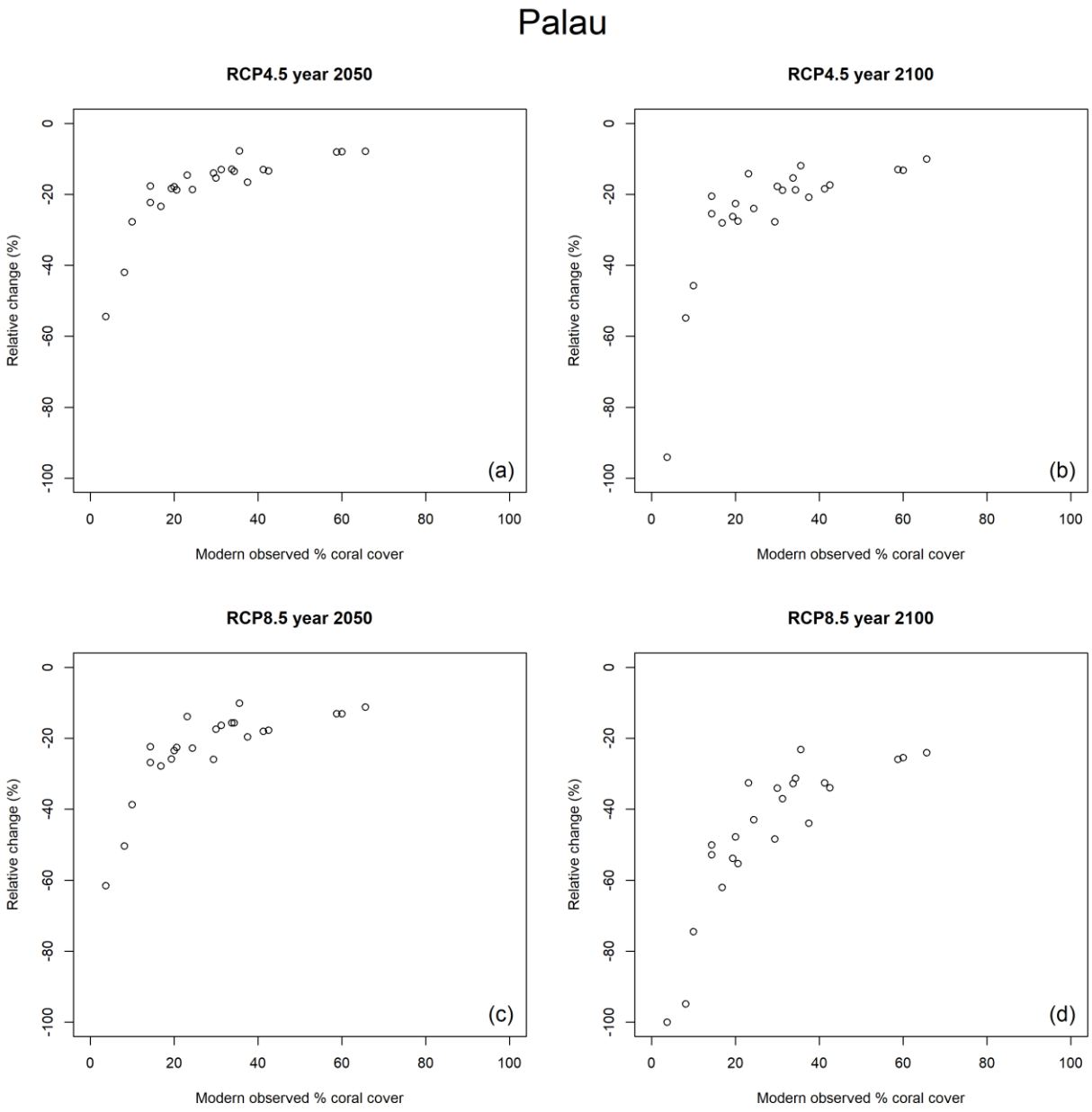

Figure S82. Relative change in percent coral cover in the Palau ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

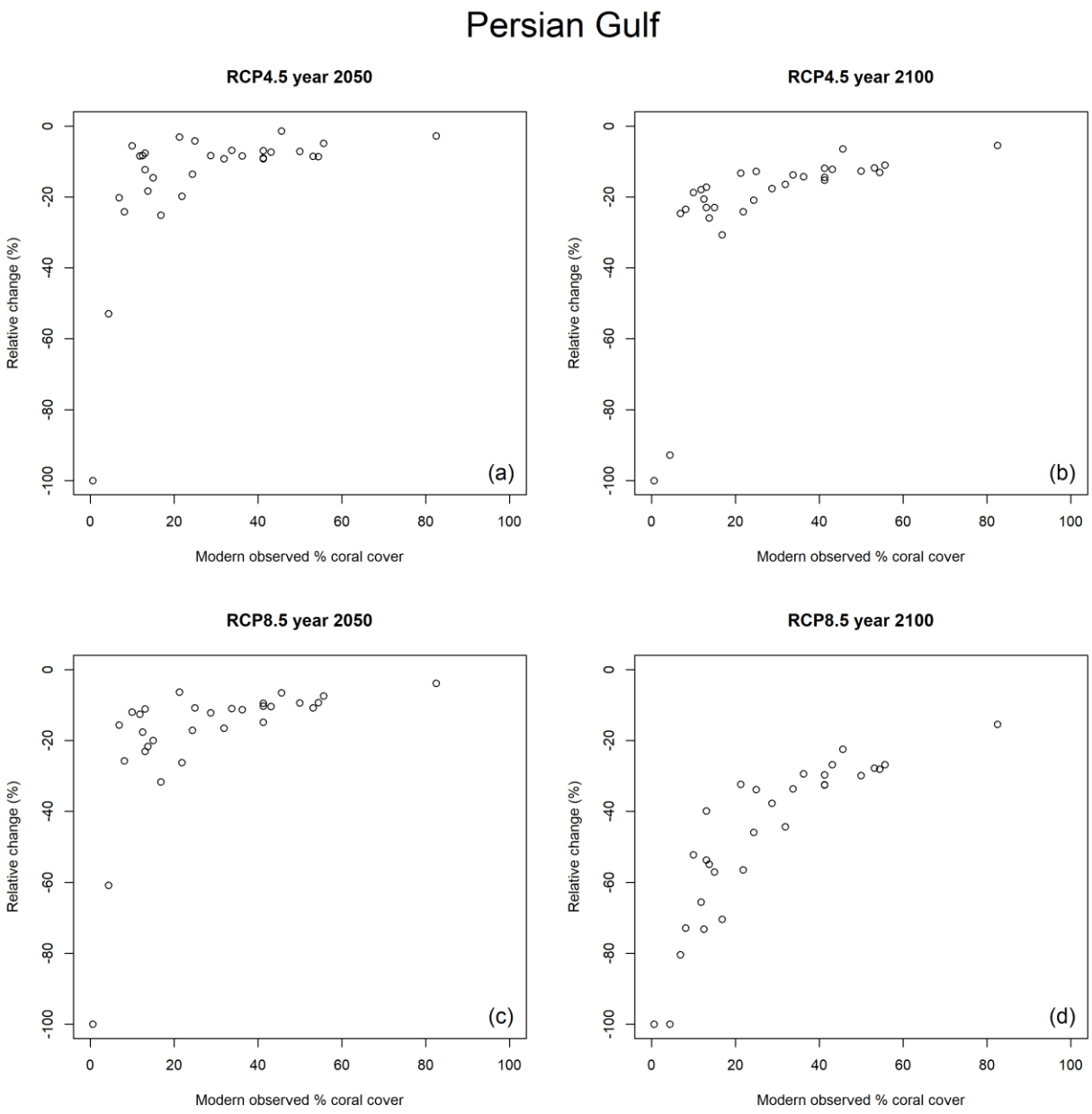

Figure S83. Relative change in percent coral cover in the Persian Gulf ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

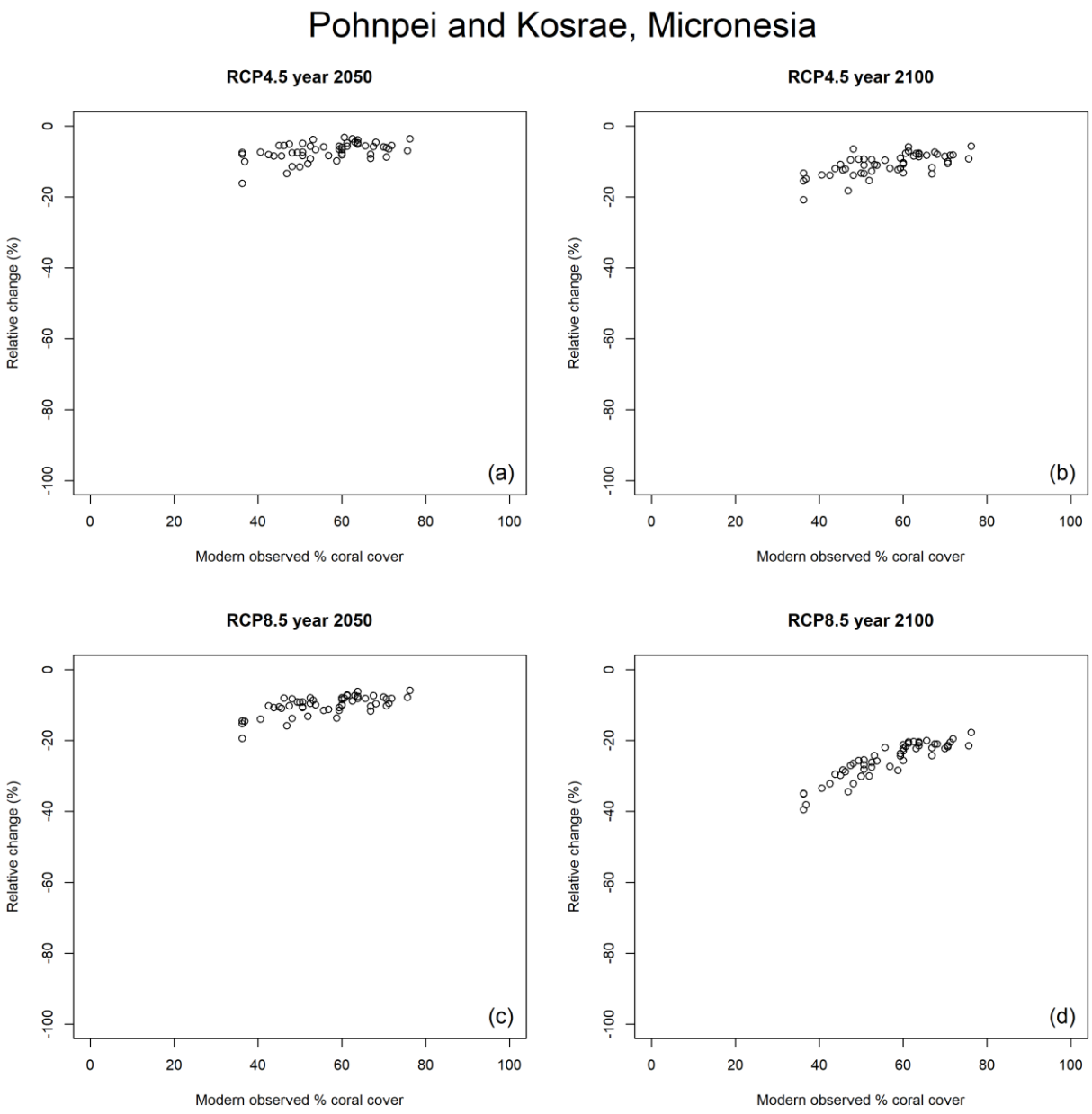

Figure S84. Relative change in percent coral cover in the Pohnpei and Kosrae, Micronesia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

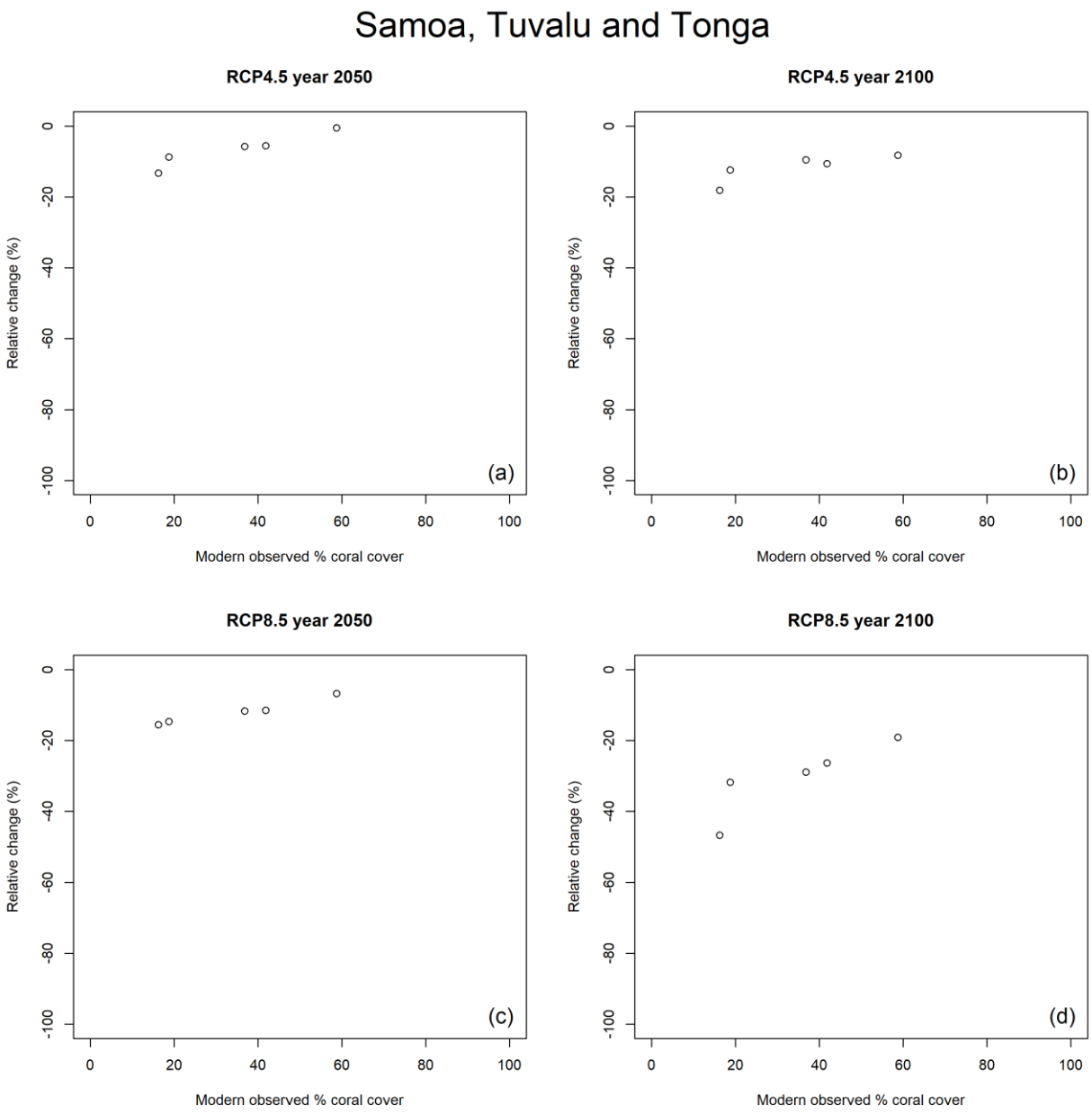

Figure S85. Relative change in percent coral cover in the Samoa, Tuvalu, and Tonga ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

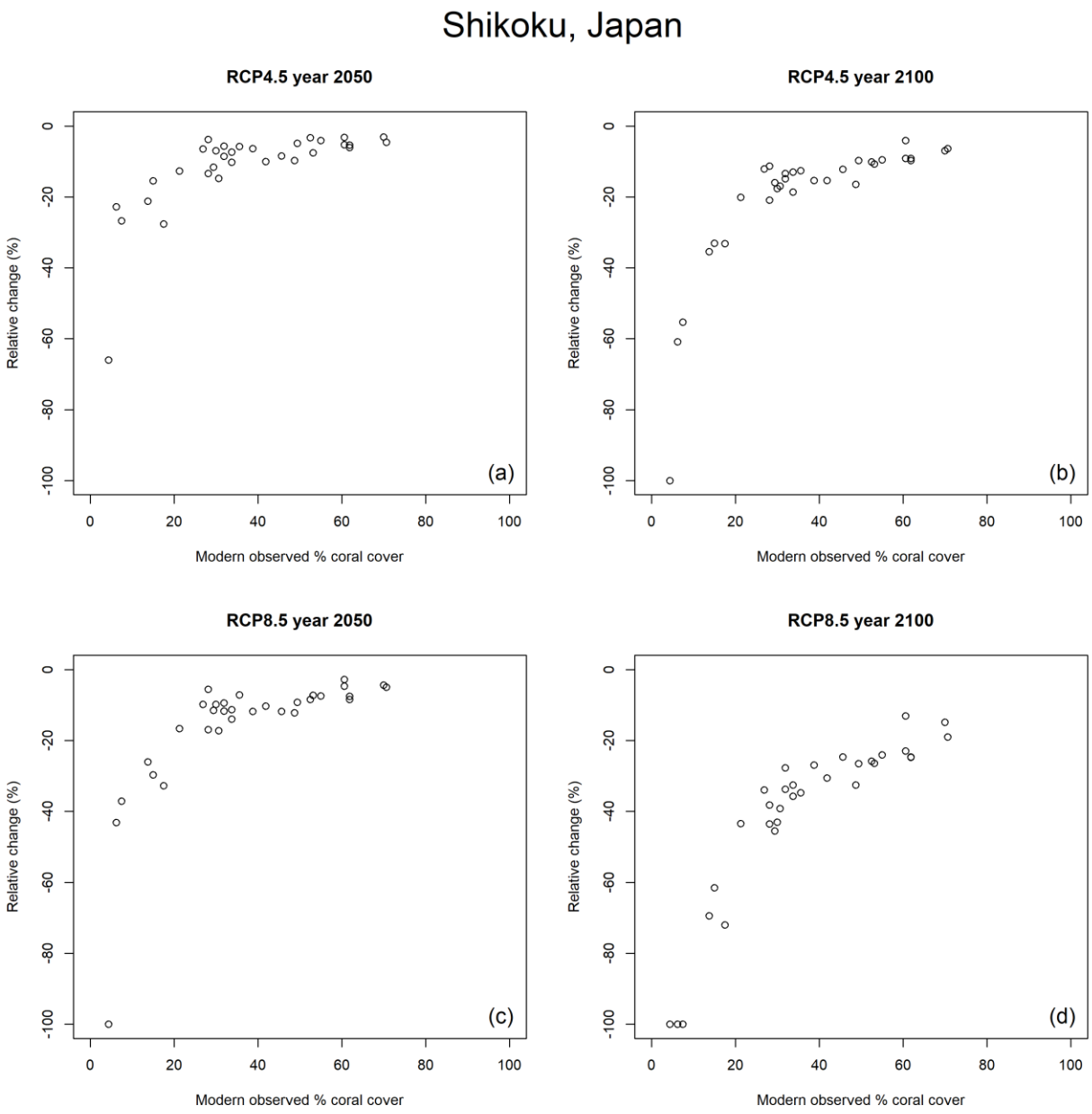

Figure S86. Relative change in percent coral cover in the Shikoku, Japan ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

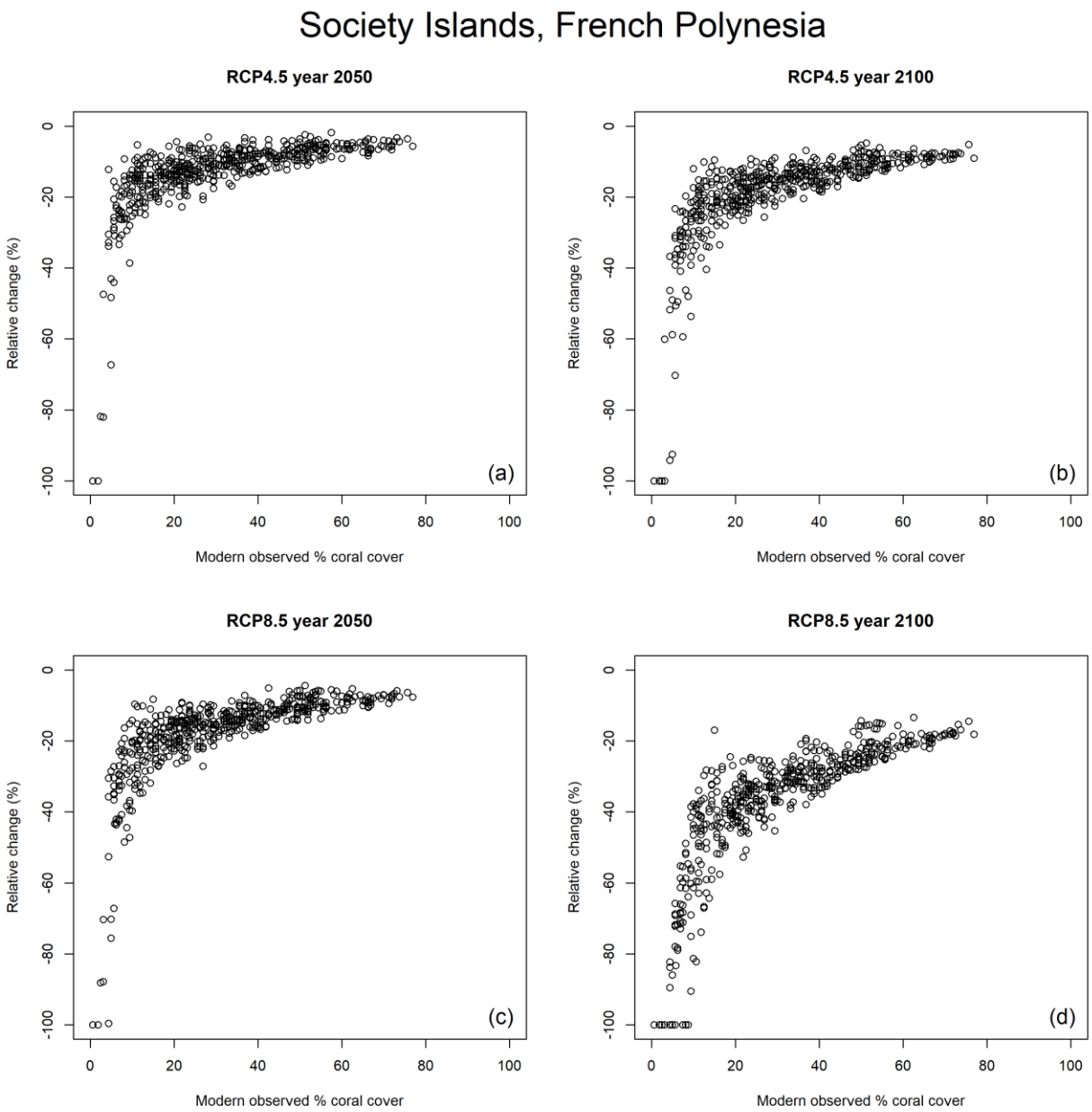

Figure S87. Relative change in percent coral cover in the Society Islands, French Polynesia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

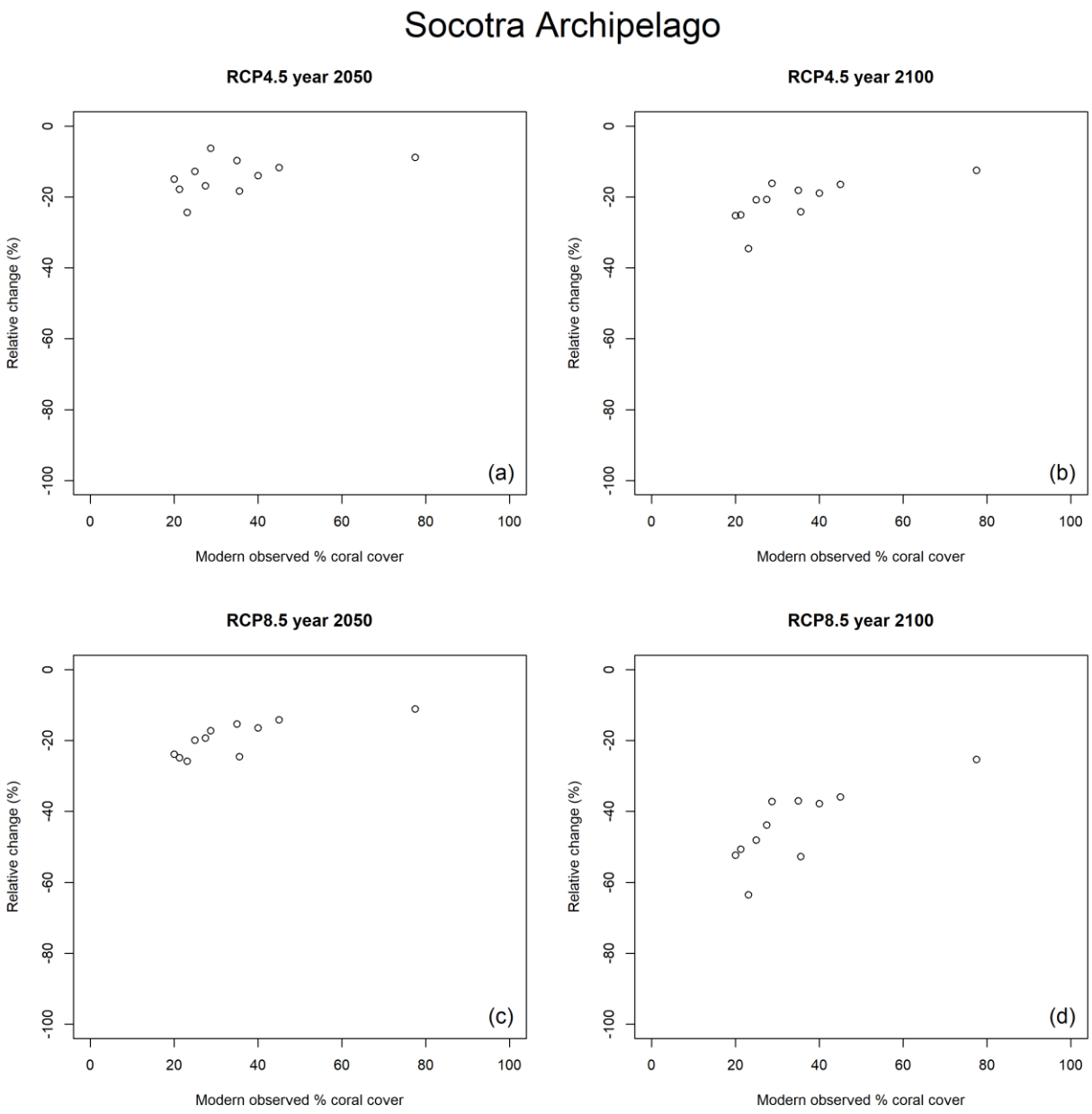

Figure S88. Relative change in percent coral cover in the Socotra Archipelago ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

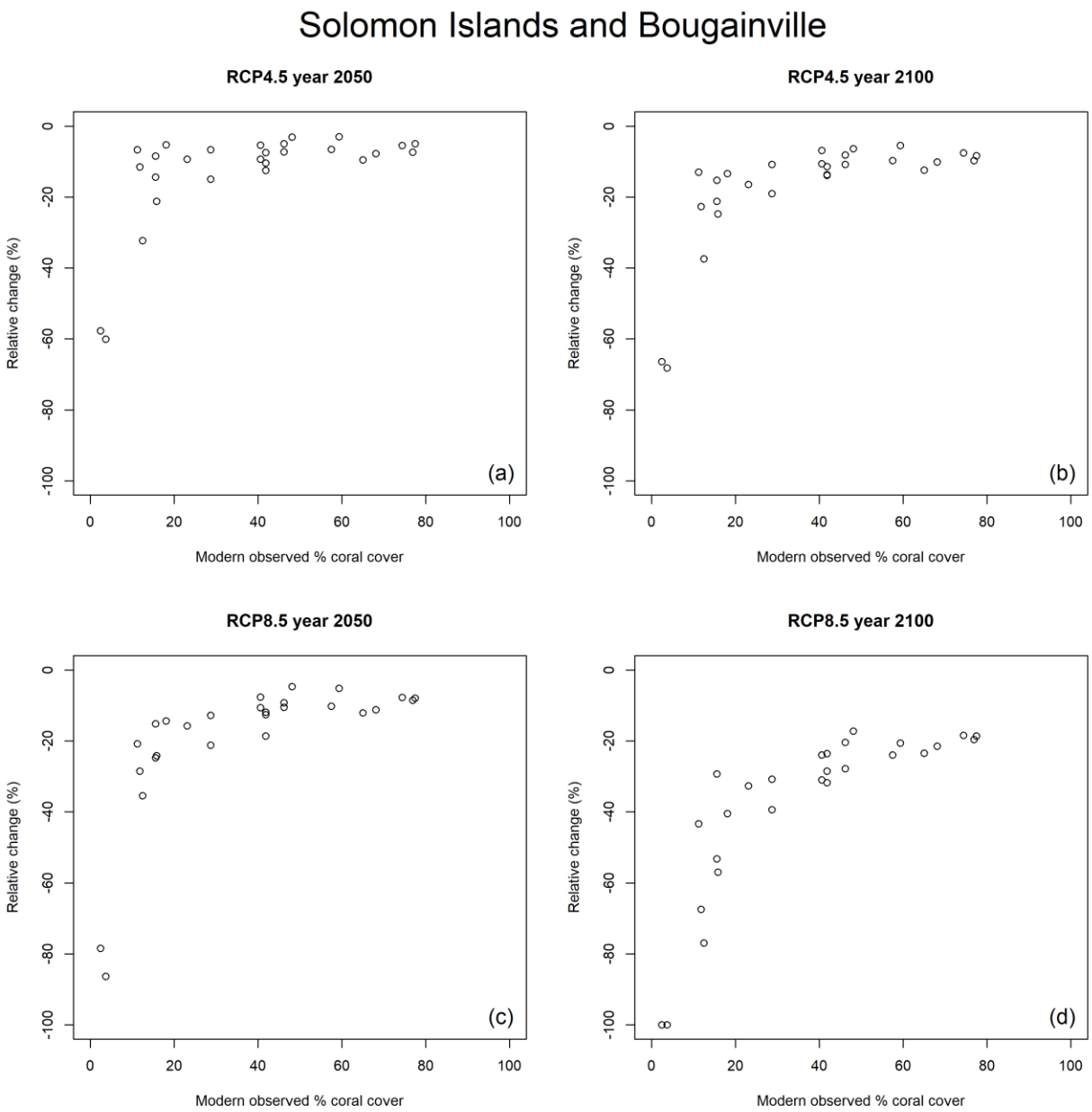

Figure S89. Relative change in percent coral cover in the Solomon Islands and Bougainville ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

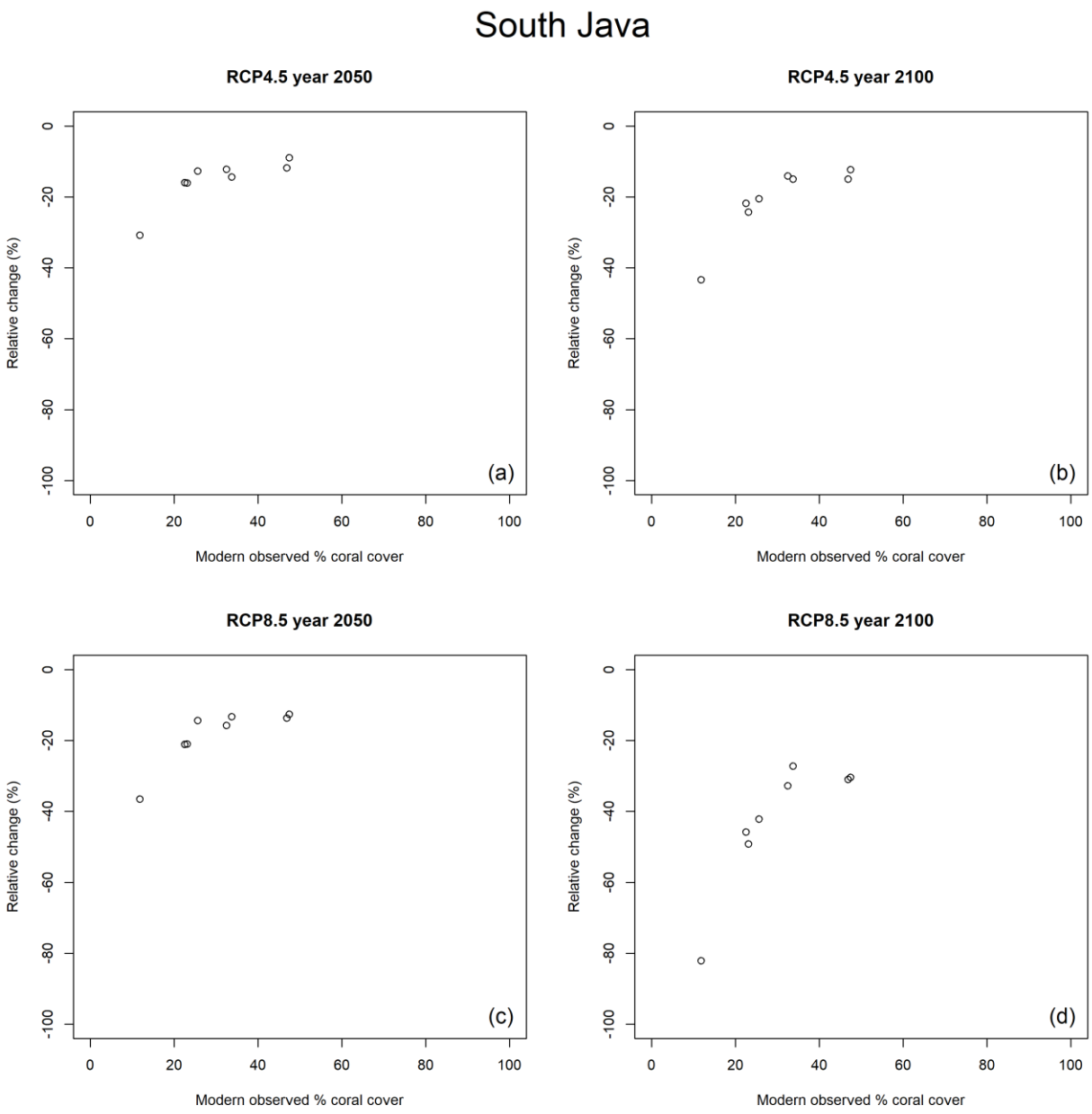

Figure S90. Relative change in percent coral cover in the south Java ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

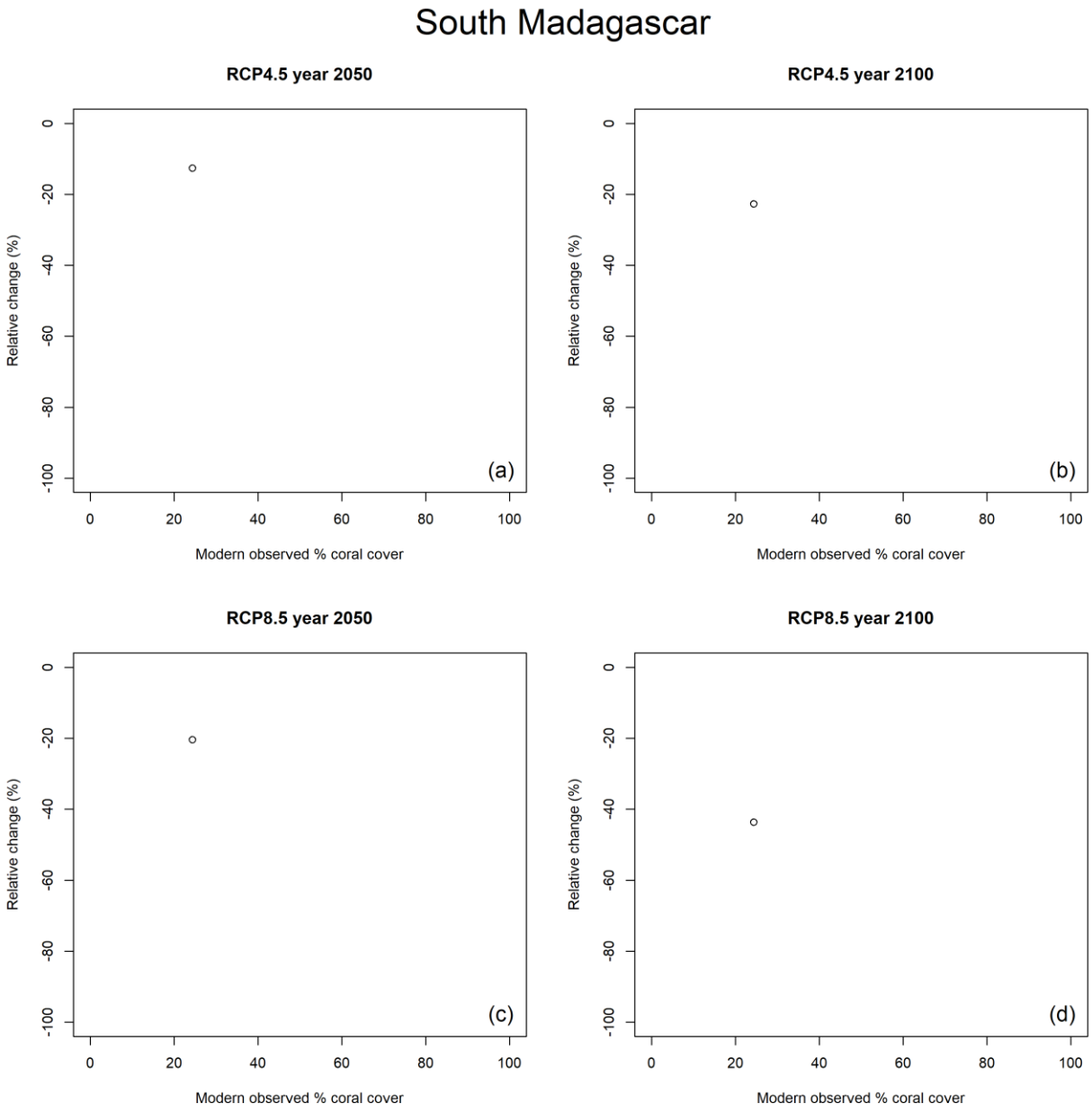

Figure S91. Relative change in percent coral cover in the south Madagascar ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

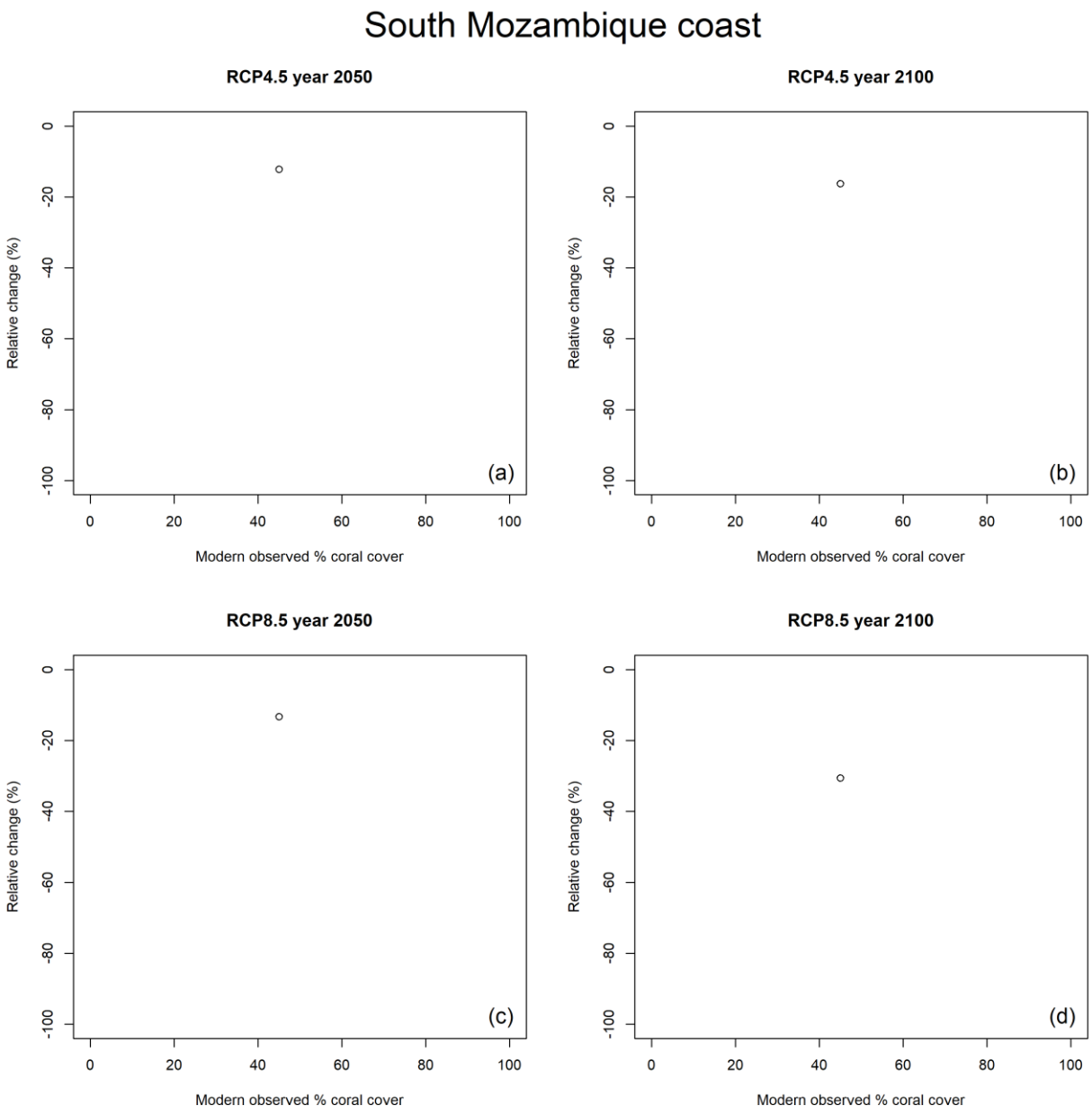

Figure S92. Relative change in percent coral cover in the south Mozambique coast ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

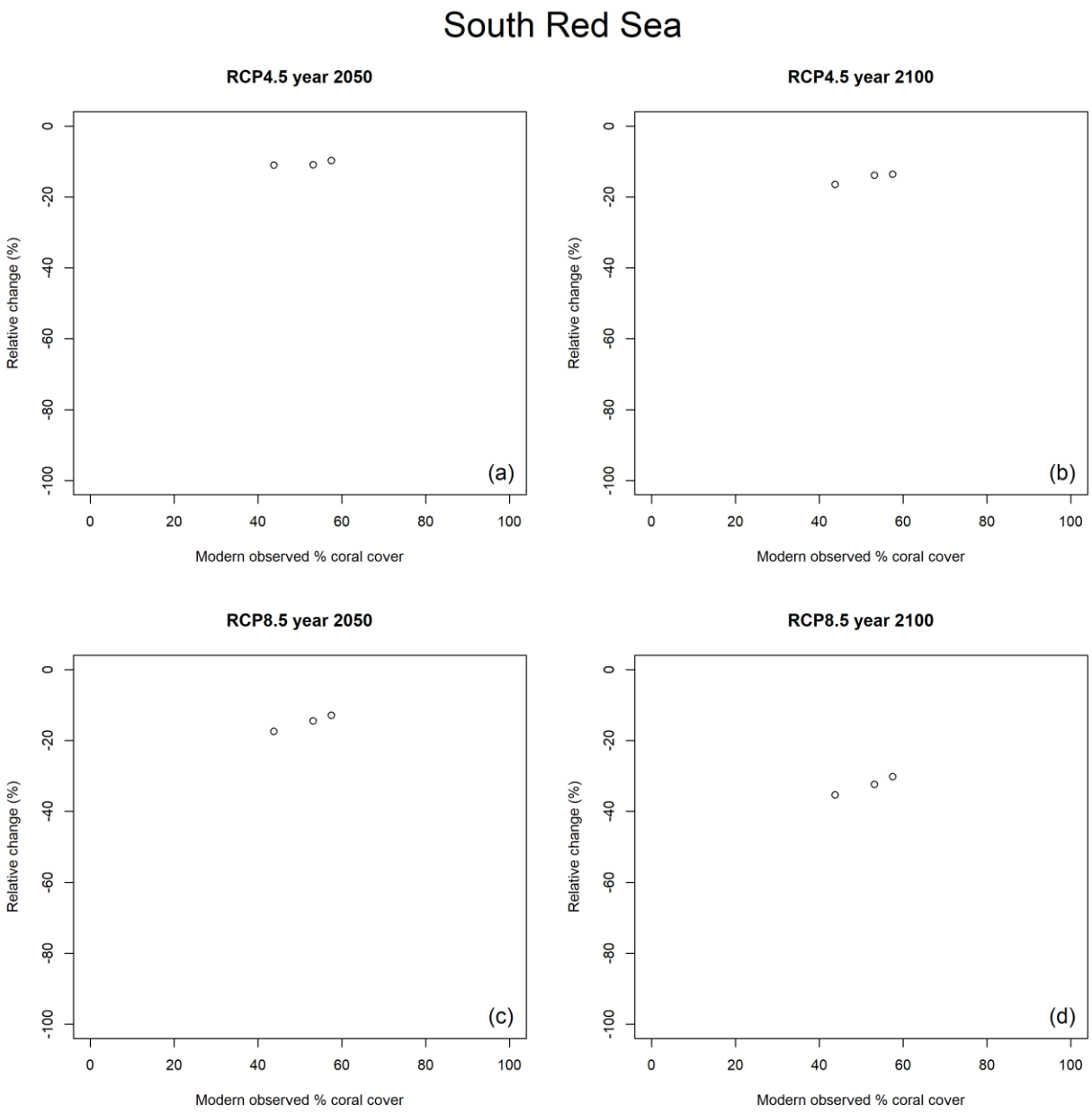

Figure S93. Relative change in percent coral cover in the south Red Sea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

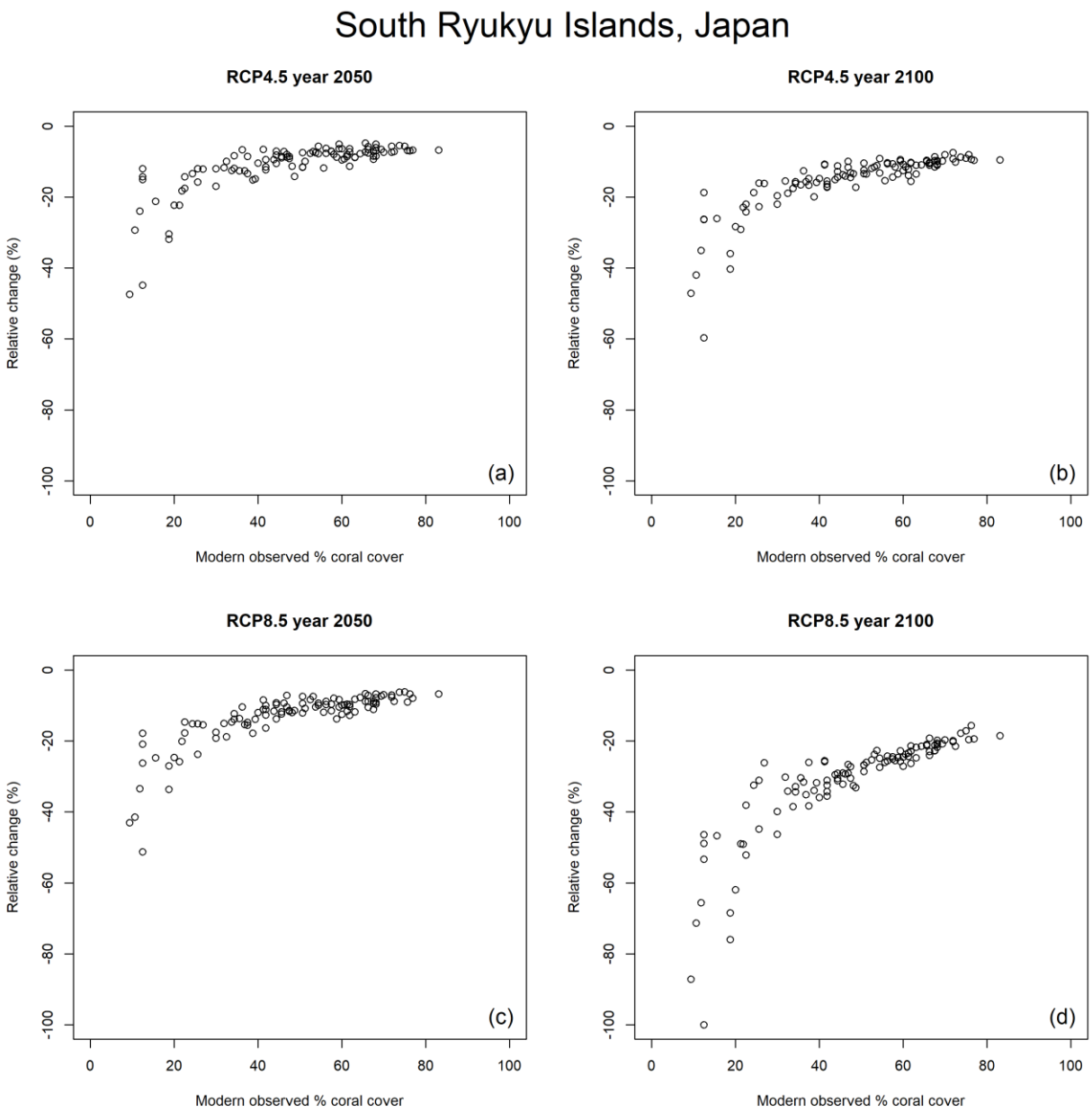

Figure S94. Relative change in percent coral cover in the south Ryukyu Islands, Japan ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

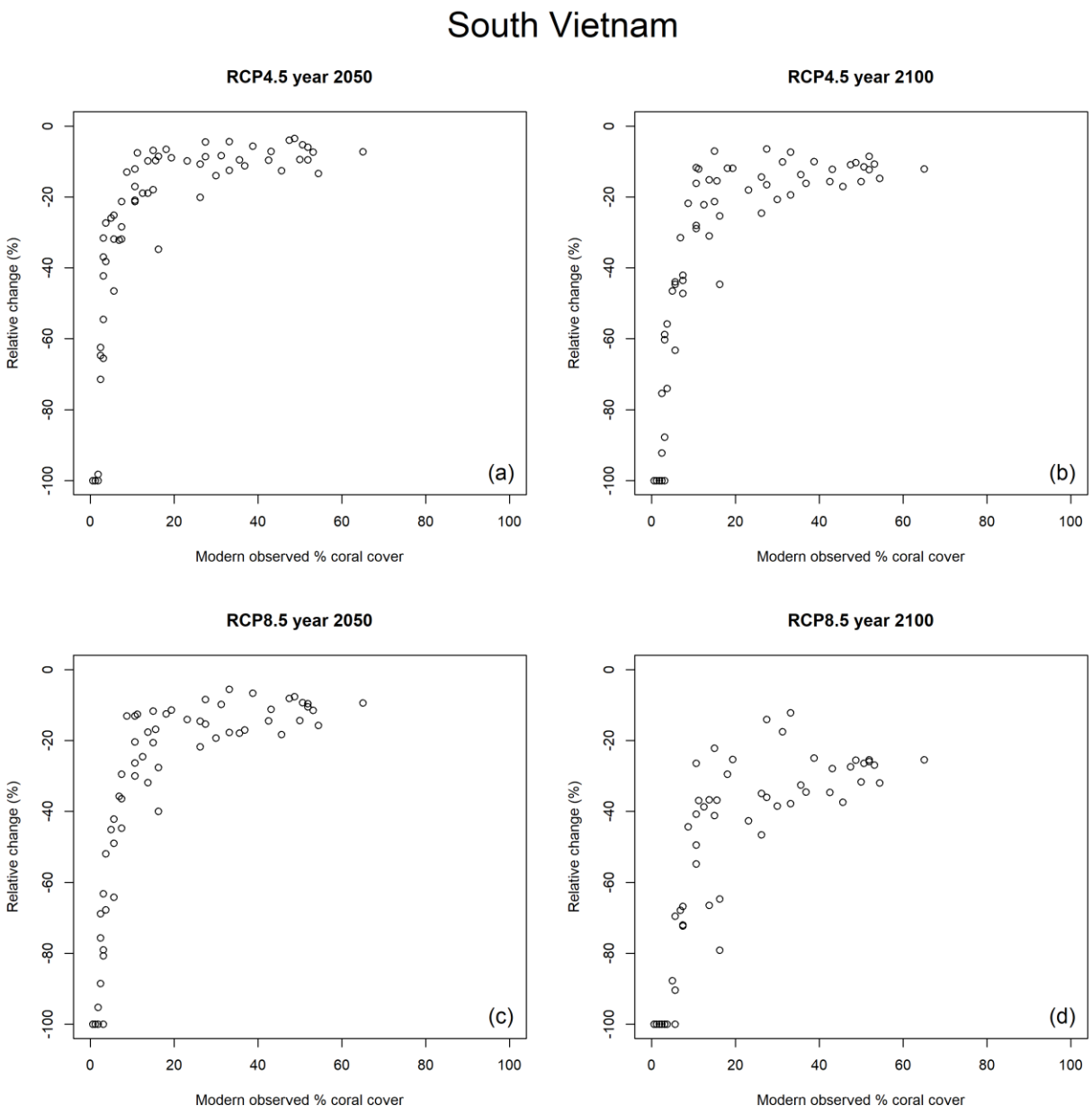

Figure S95. Relative change in percent coral cover in the south Vietnam ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

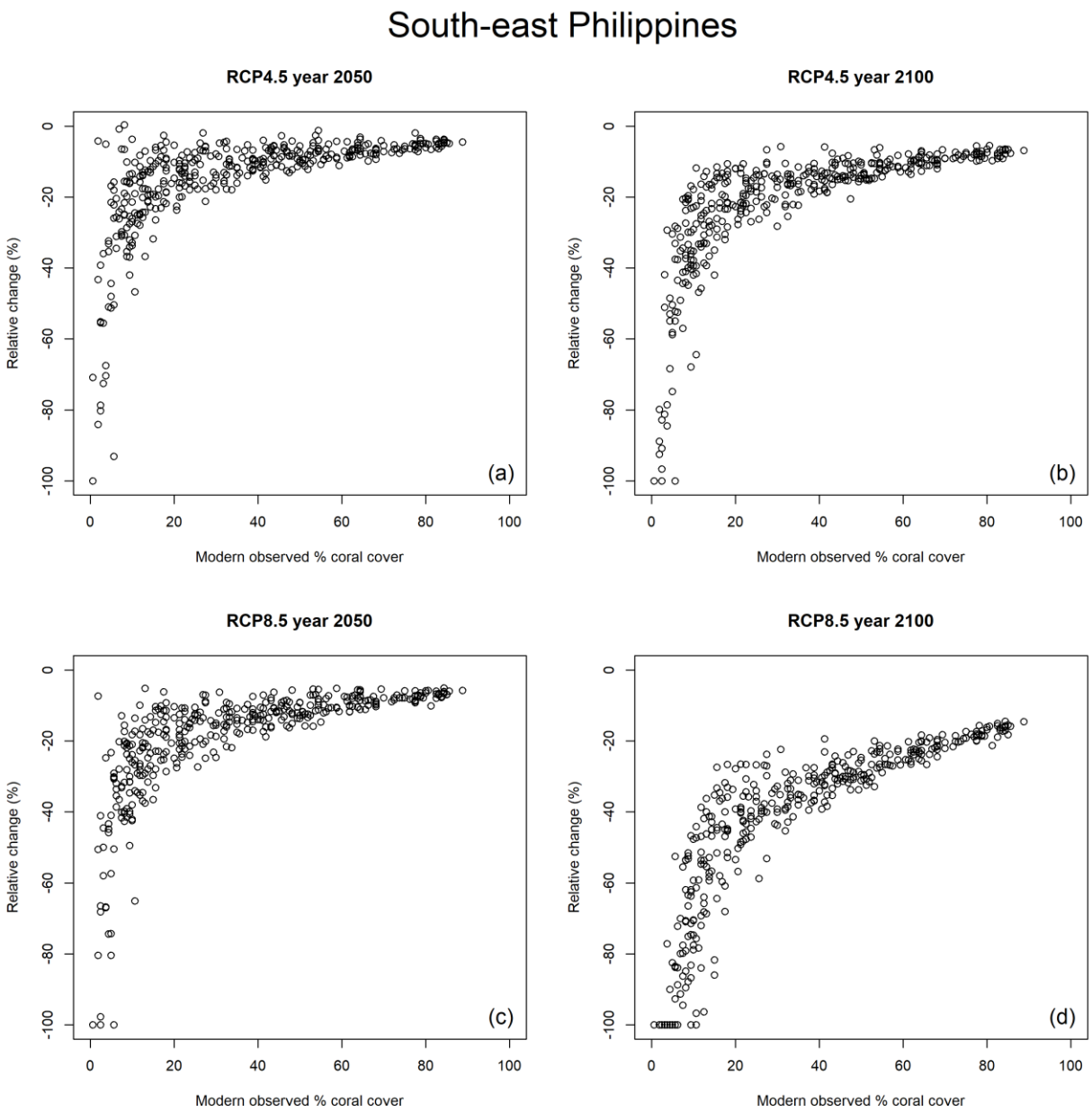

Figure S96. Relative change in percent coral cover in the south-east Philippines ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

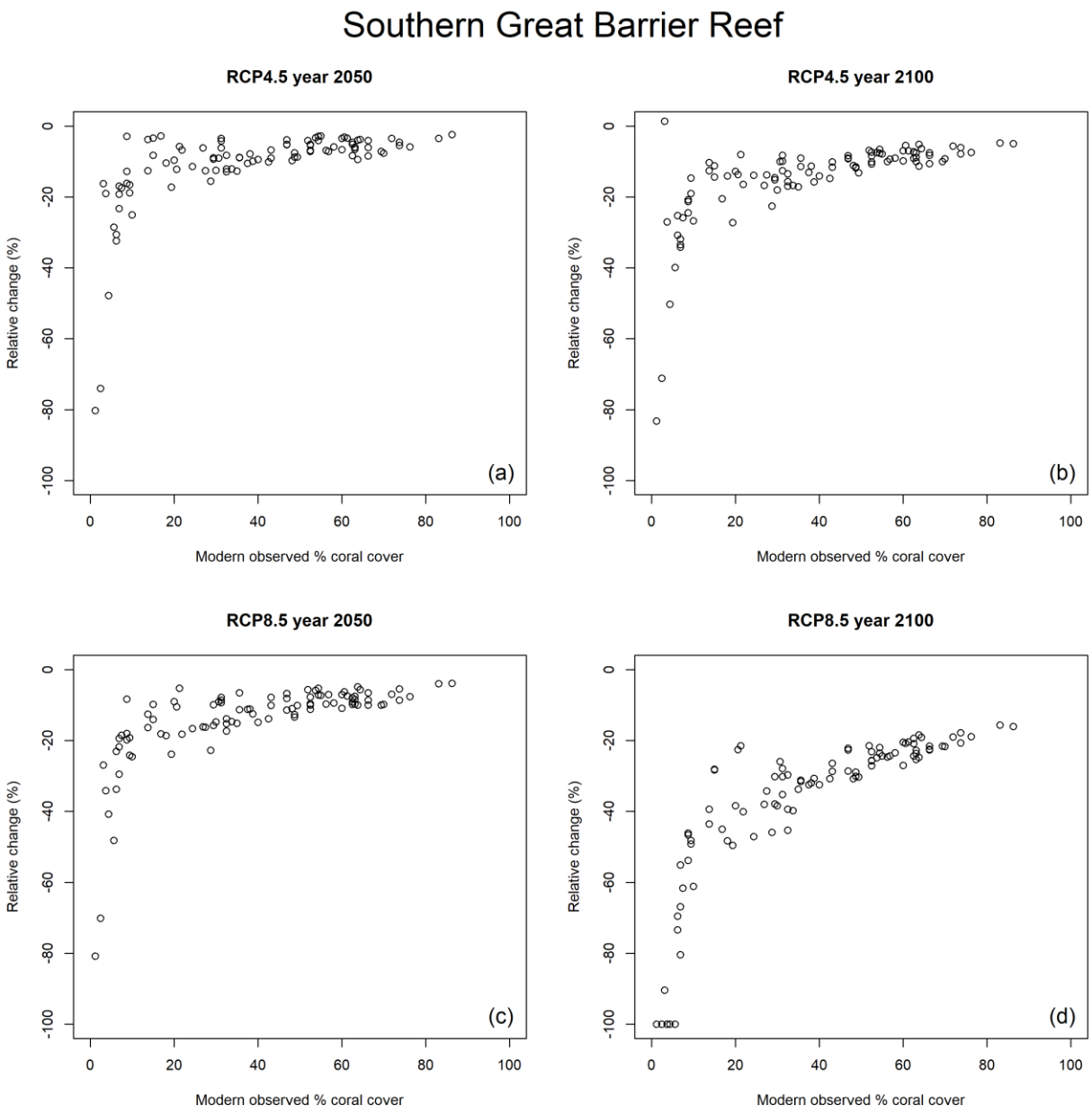

Figure S97. Relative change in percent coral cover in the southern Great Barrier Reef ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

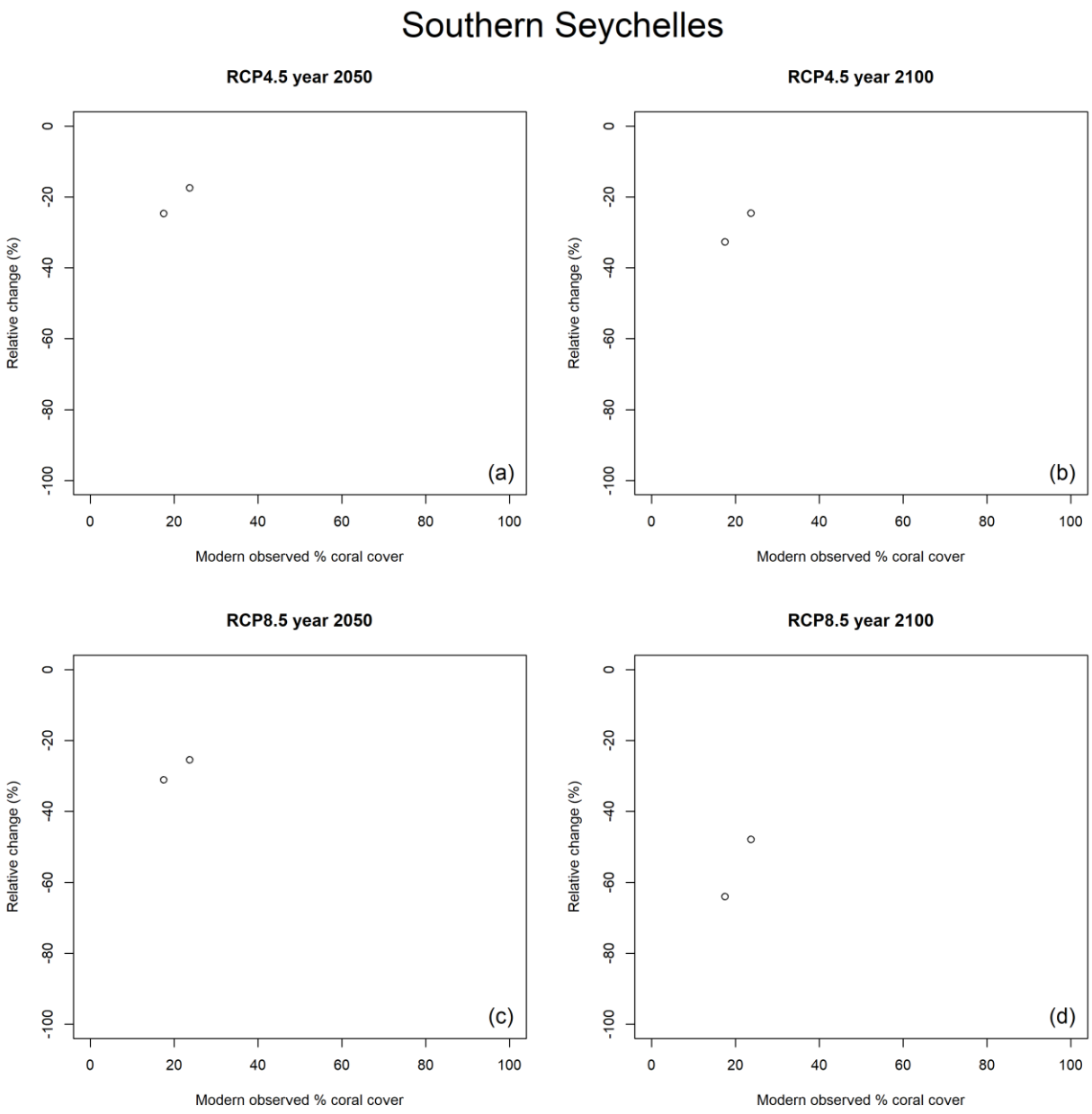

Figure S98. Relative change in percent coral cover in the southern Seychelles ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

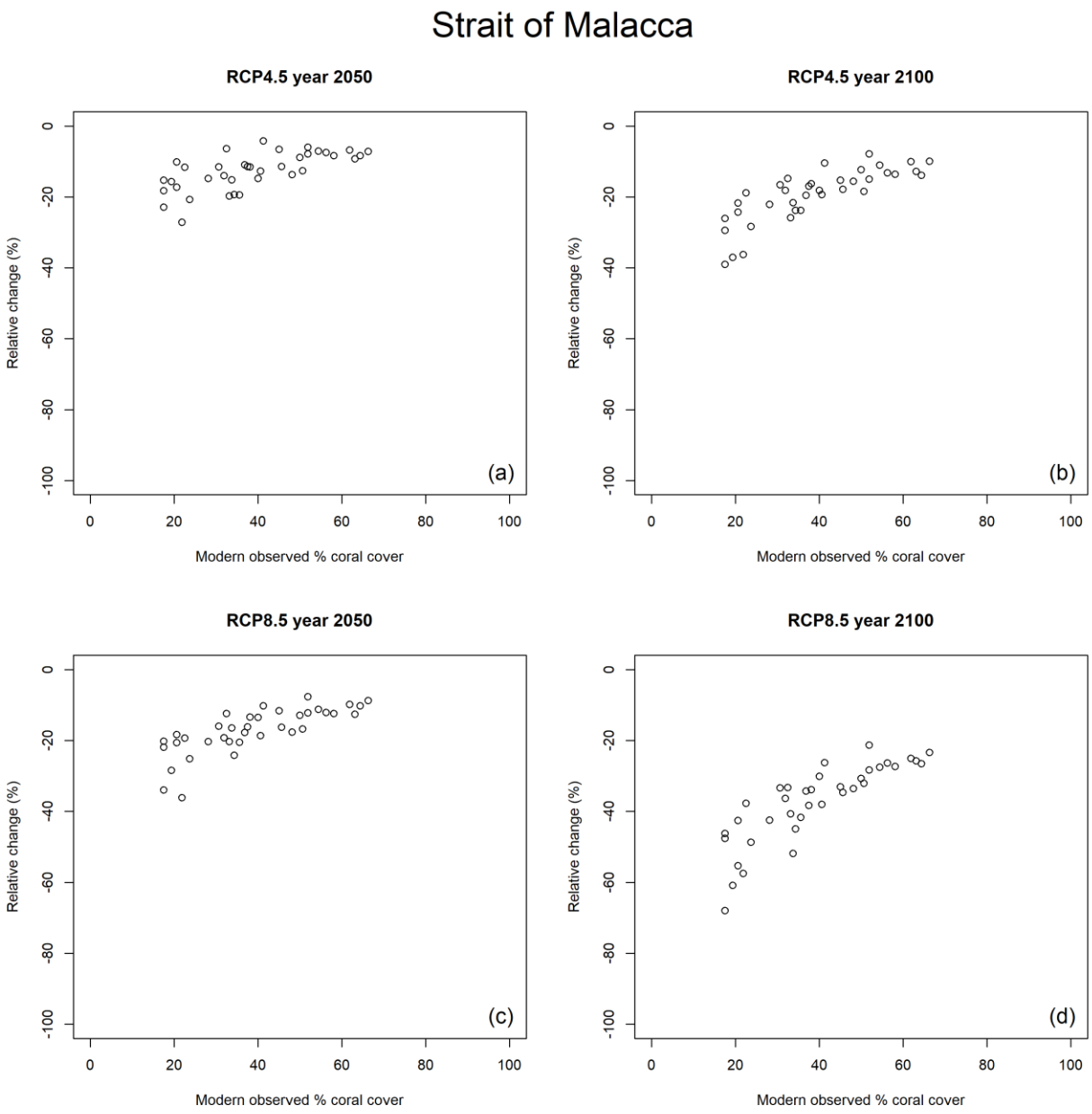

Figure S99. Relative change in percent coral cover in the Strait of Malacca ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

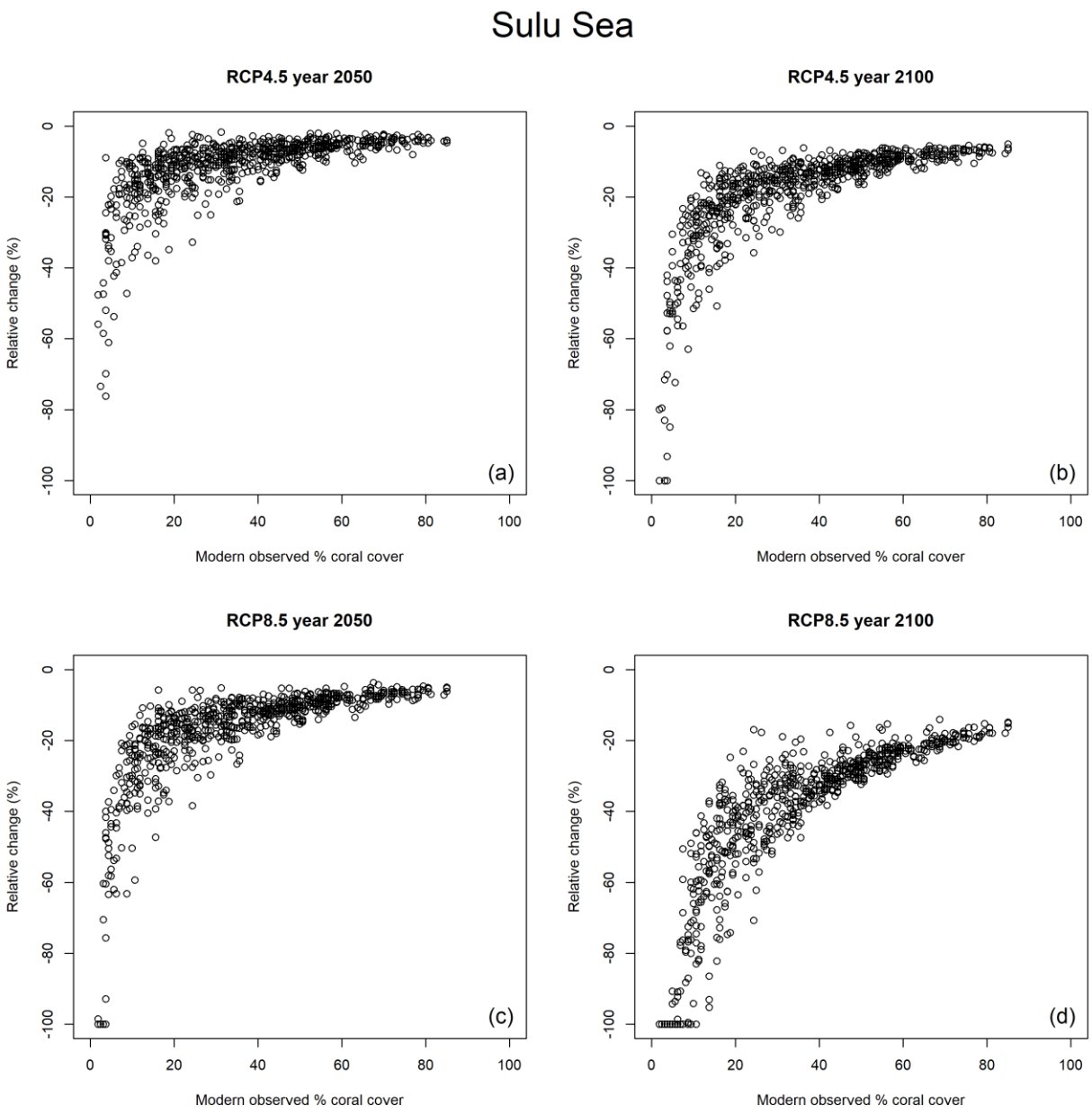

Figure S100. Relative change in percent coral cover in the Sulu Sea ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

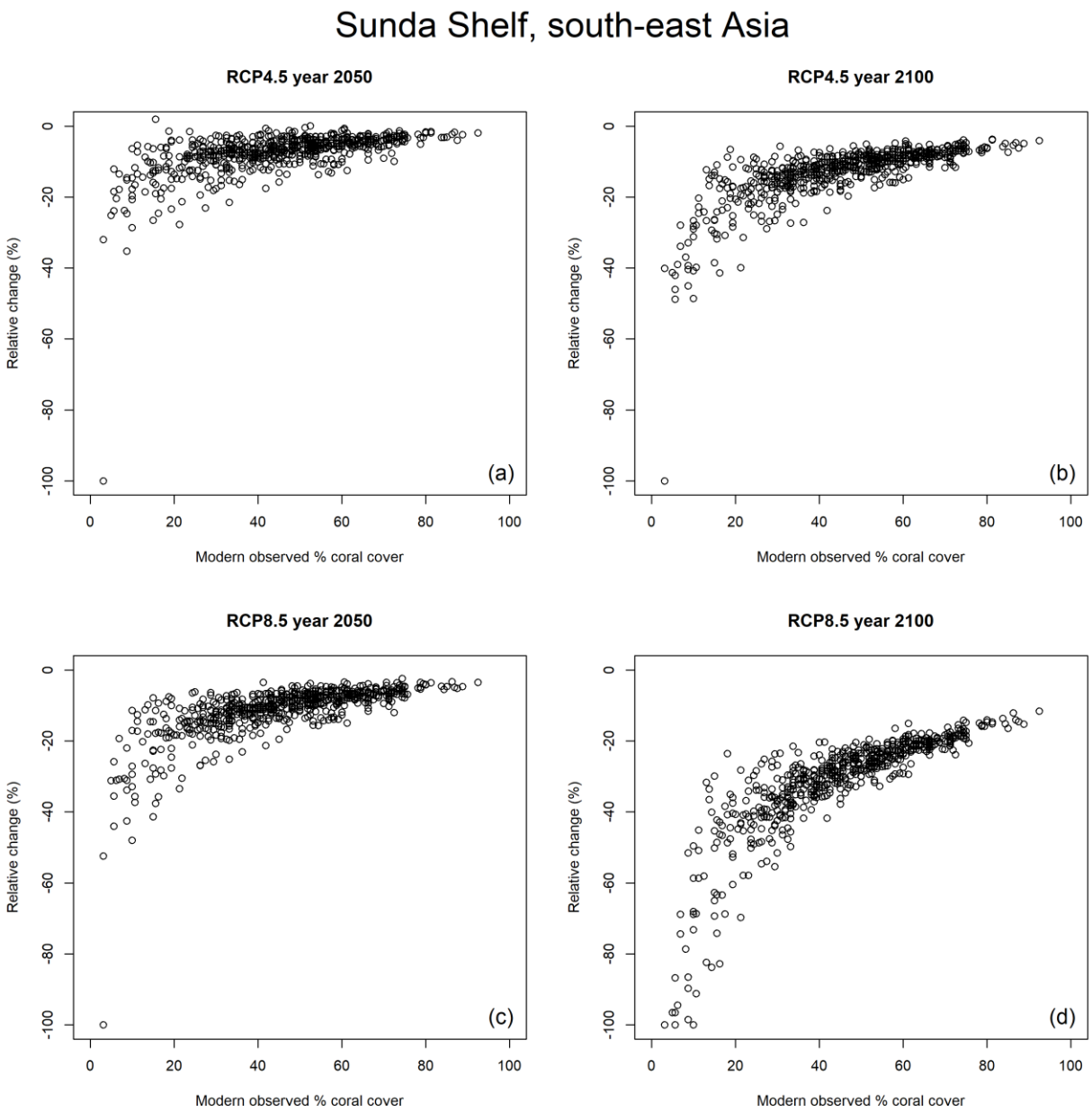

Figure S101. Relative change in percent coral cover in the Sunda Shelf, south-east Asia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

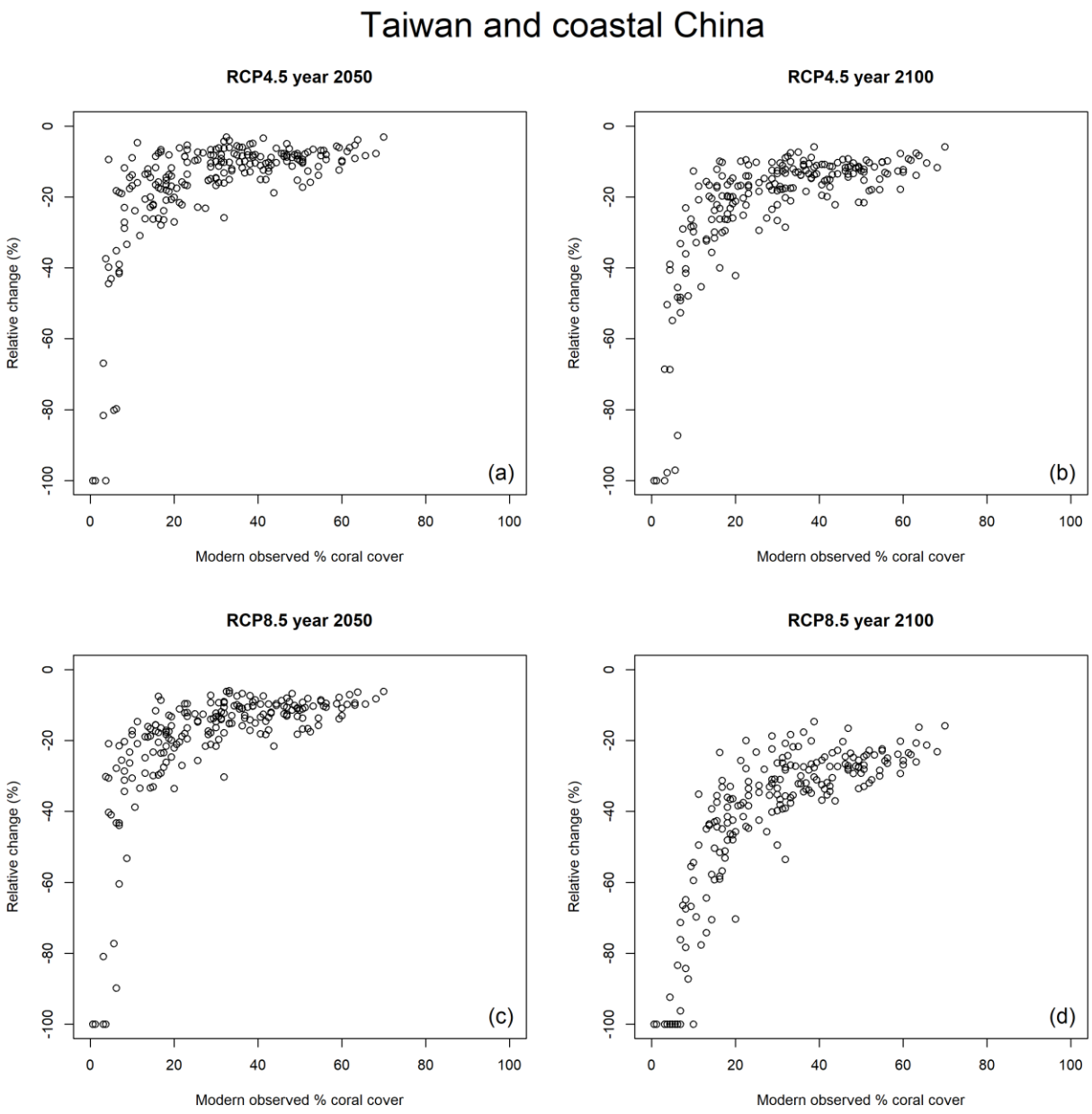

Figure S102. Relative change in percent coral cover in the Taiwan and coastal China ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

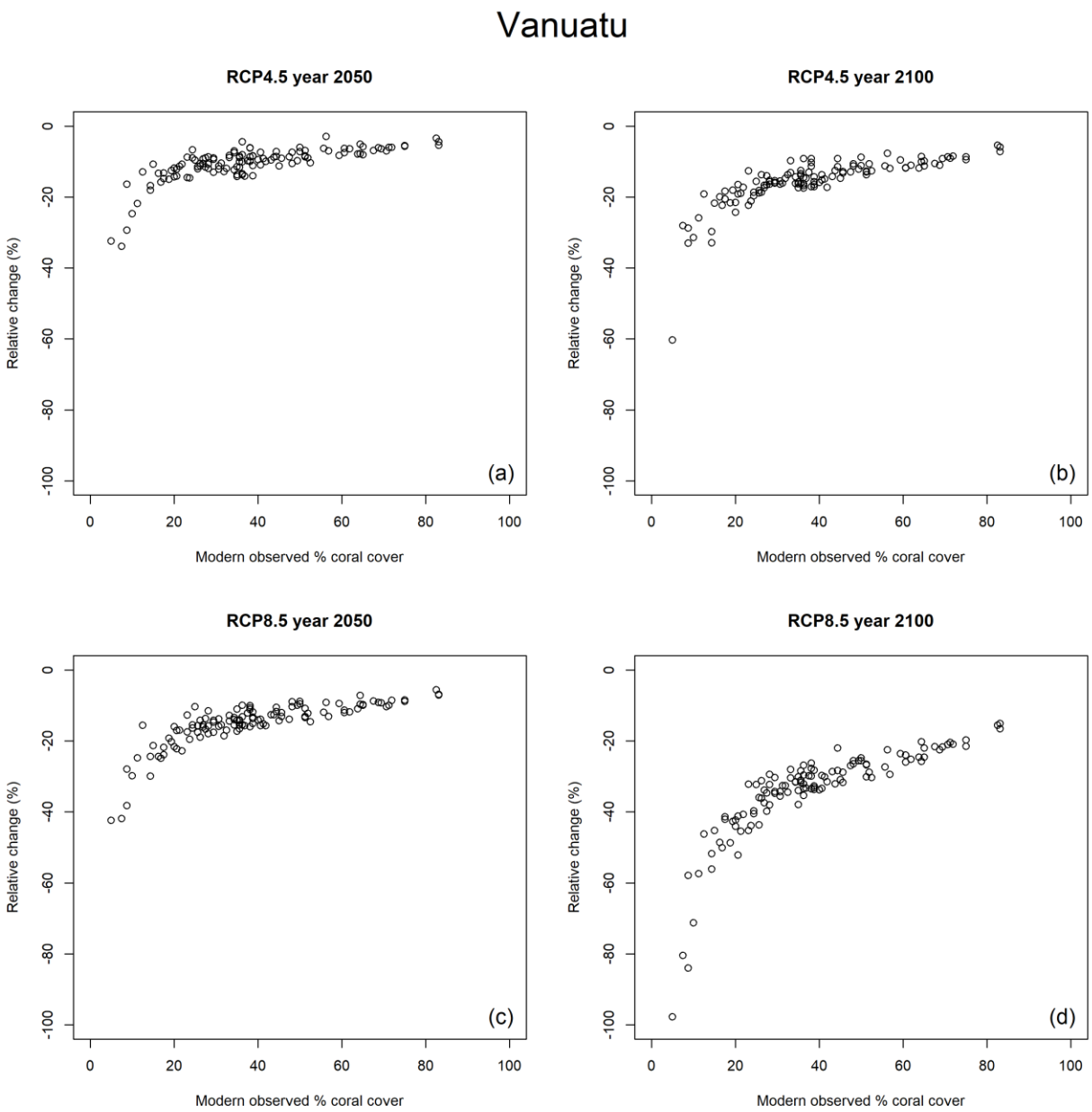

Figure S103. Relative change in percent coral cover in the Vanuatu ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

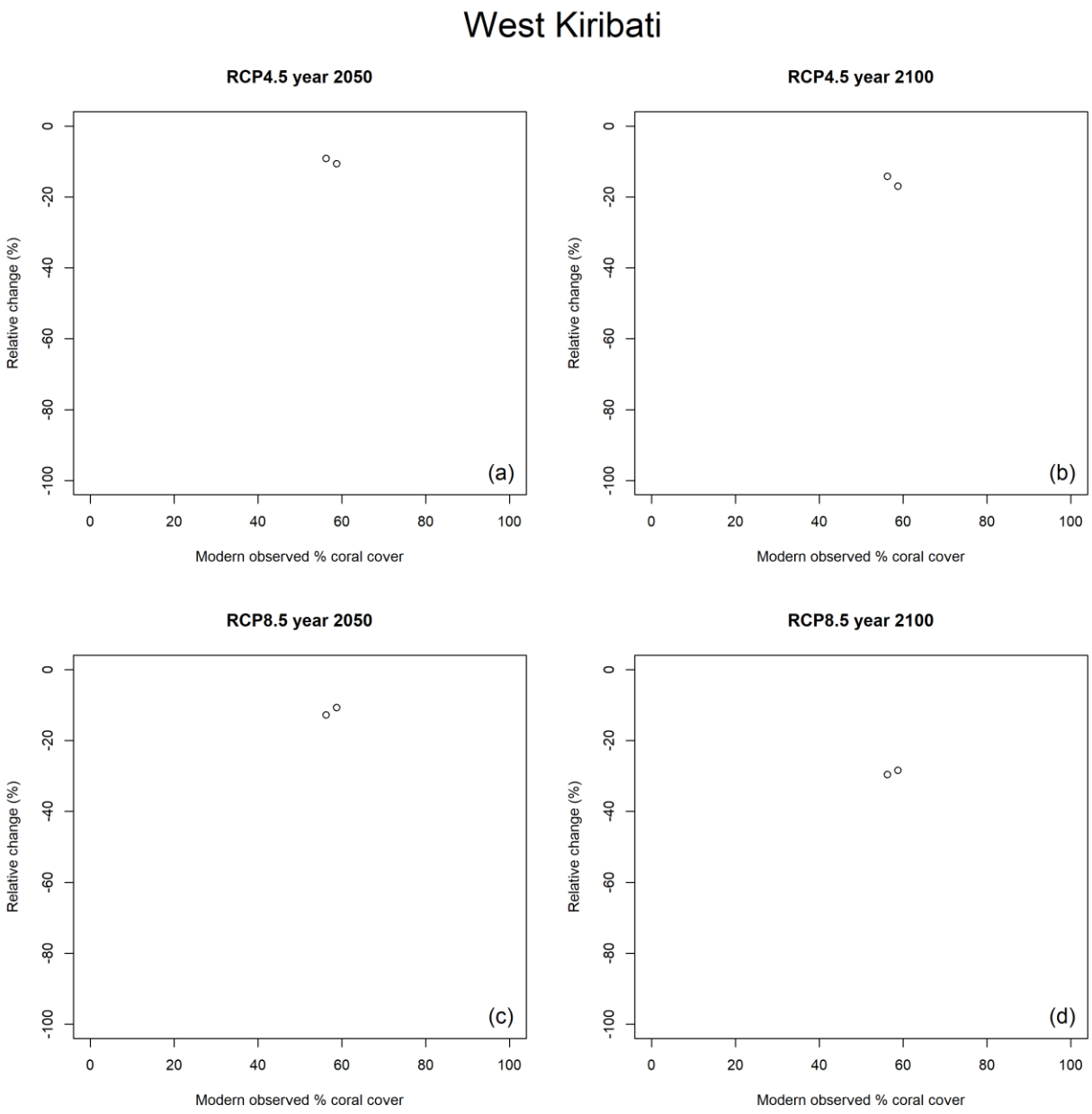

Figure S104. Relative change in percent coral cover in the West Kiribati ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

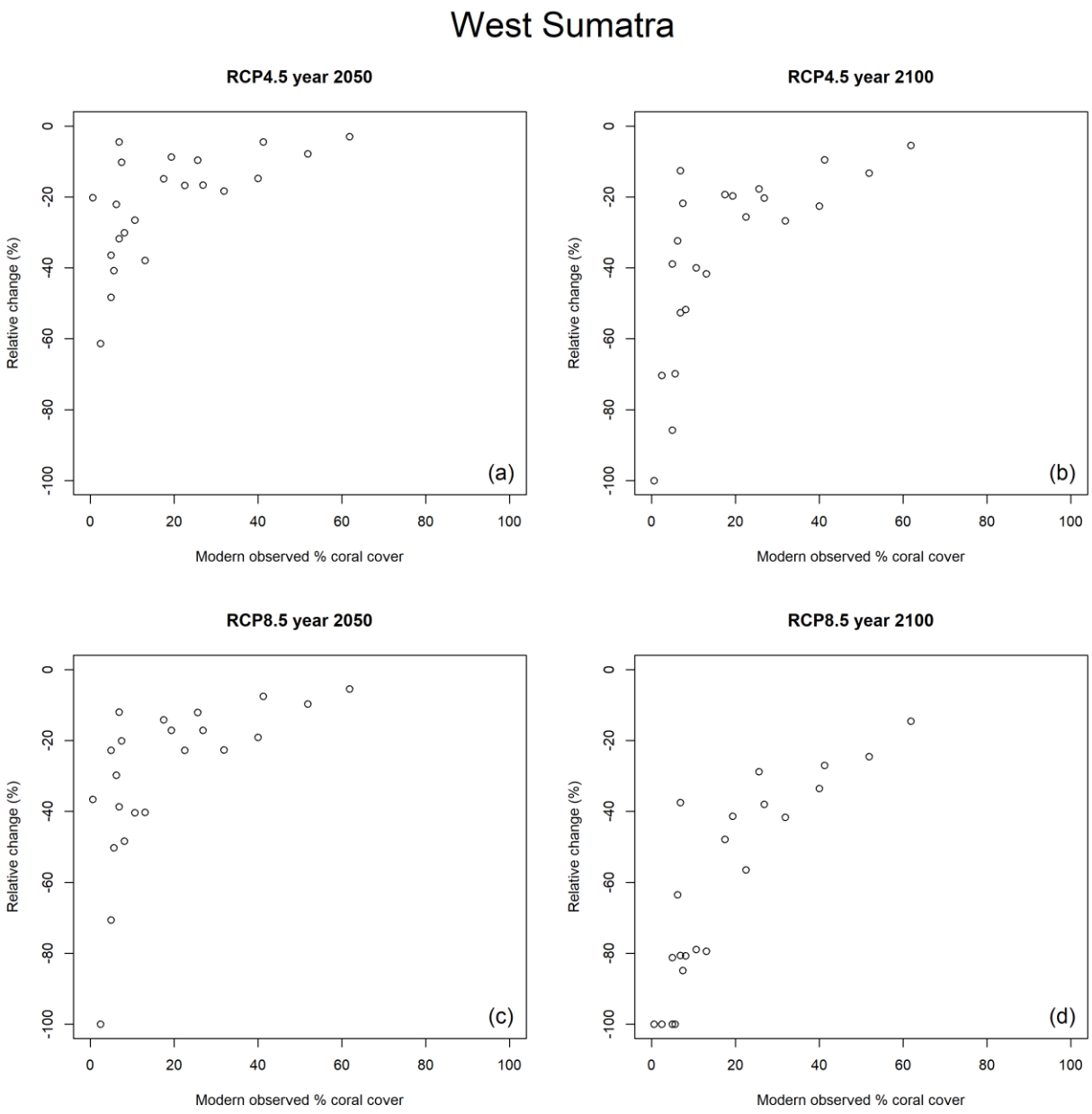

Figure S105. Relative change in percent coral cover in the west Sumatra ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

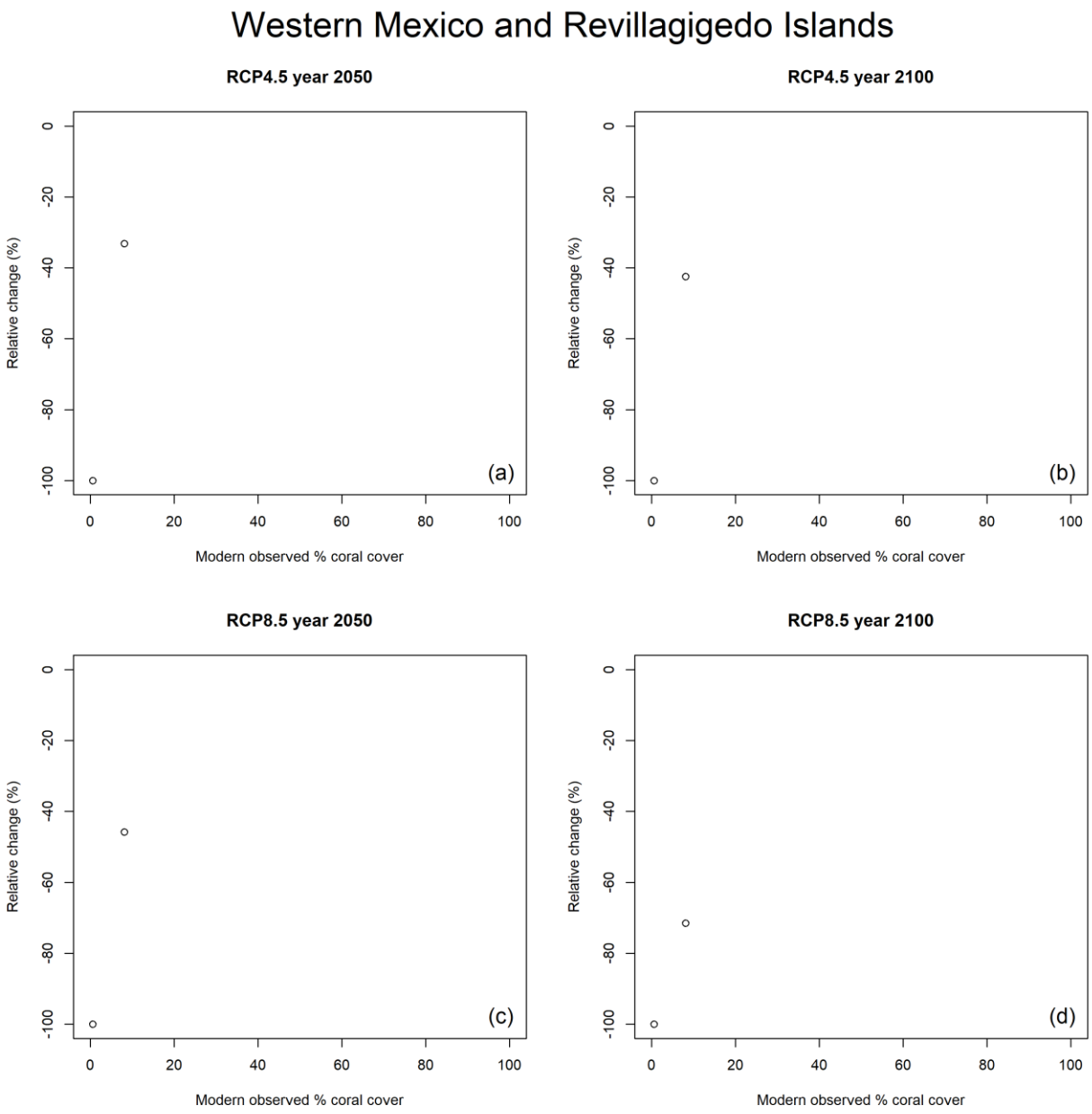

Figure S106. Relative change in percent coral cover in the western Mexico and Revillagigedo Islands ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

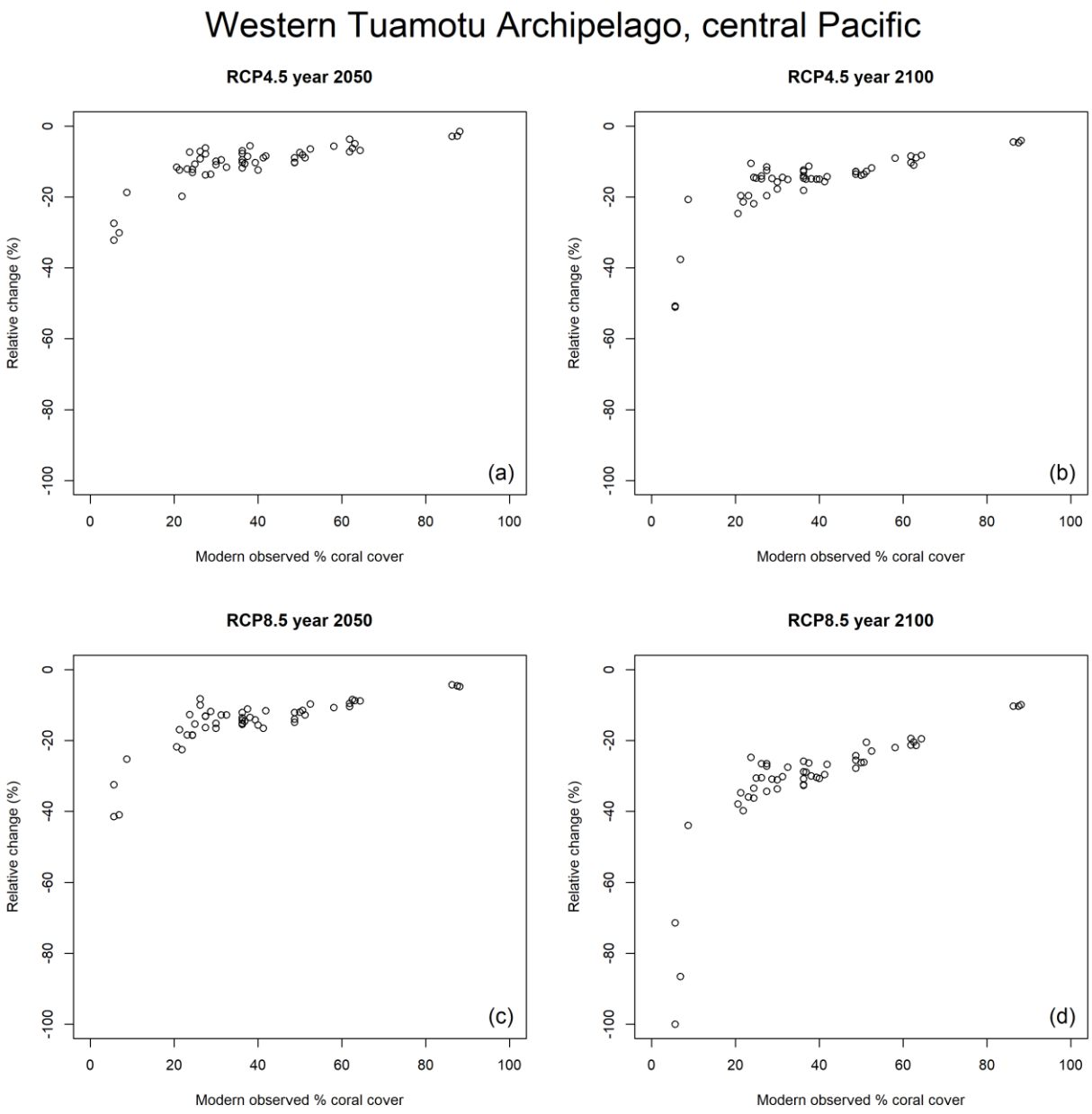

Figure S107. Relative change in percent coral cover in the western Tuamotu Archipelago, central Pacific ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

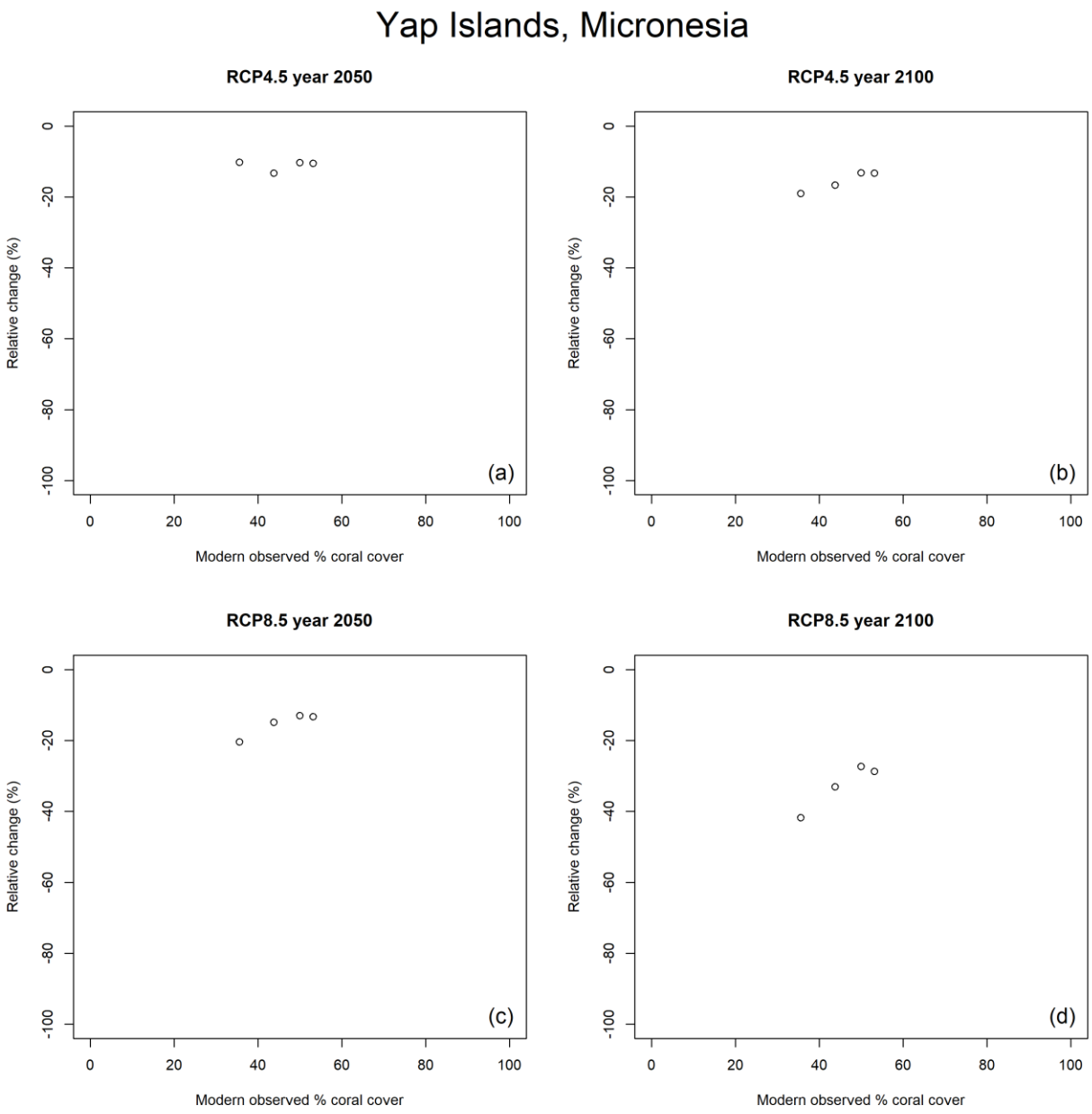

Figure S108. Relative change in percent coral cover in the Yap Islands, Micronesia ecoregion. Relative change in percent coral cover projected under a) RCP4.5 in year 2050, b) RCP4.5 in year 2100, c) RCP8.5 in year 2050, and d) RCP8.5 in year 2100.

Table S3. Reef Check coordinators. Reef Check coordinators who worked during the years 1997–2018 and the country or territory in which they worked.

Name	Country/Territory
Nancy Dashbach	American Samoa
Jeremy Goldberg	American Samoa
Domingo Ochavillo	American Samoa
Susan Hieter	Aruba

Jos Hill	Australia GBR
Jennifer Loder	Australia GBR
Andy Dustan	Australia GBR
Chris Simpson	Australia WA
Patrick O'Leary	Australia NT
Amanda Newbold	Bahamas
Roger Uwate	Bahrain
AKM Matin	Bangladesh
M. Zahirul Islam	Bangladesh
Loreto Duffy Myers	Barbados
Andre Miller	Barbados
Angie Brathwaith	Barbados
Mito Paz	Belize
Thaddeus Murdoch	Bermuda
Beatrice Padovani Ferreira	Brazil
Trish Baily	British Virgin Islands
Marcus Lyng	British Virgin Islands
Abdul Yusrin Salleh	Brunei
Carrie Manfrino	Cayman islands
Gianluca Lamberti	Cambodia
Liu Bin	China
Wang Lu	China
Chen Gang	China
Mindy Zhou	China
Robert Thorn	Cocos (Keeling) Islands
Chris Boland	Cocos (Keeling) Islands
John Hueston	Cocos (Keeling) Islands
Jaime Garzon	Colombia
Phanor H Montoya-Maya	Colombia
Giovanna Penaloza Newball	Colombia
Cristina Sanchez Godinez	Costa Rica
Elena de la Guardia	Cuba
Susel Castellanos Iglesias	Cuba
Paul Hoetjes	Curacao
Marjo van den Bulck	Curacao
Mohammed Kotb	Djibouti; Egypt; Jordan; Saudi Arabia; Sudan; Yemen
Arun Madisetti	Dominica
Ruben Torres	Dominican Republic
Moshira Hassan	Egypt
Katrina Adams	Federated States of Micronesia (Kosrae)
Robin South	Fiji
Helen Sykes	Fiji
Edward Lovell	Fiji
Remi Garnier	France (Guadeloupe)

Michel Pichon	France
Cecile Gaspar	French Polynesia
Annie Chancerelle	French Polynesia
Elodie Lagouy	French Polynesia
Georg Heiss	Germany (Myanmar)
Lucia Gutierrez	Guatemala
Stephen Jean-Louis	Haiti
Erika Pierre-Louis	Haiti
Jonathan Shrives	Honduras
Adrian Oviedo	Honduras
Keith Kei	Hong Kong
Hariharan Iyyappan	India
Ketut Sarjana	Indonesia
Richard Chin	Indonesia
Sarah Curran	Indonesia
Abigail Moore	Indonesia
Derta Prabuning	Indonesia
Naneng Setiasih	Indonesia
Wahab Maghsoudlou	Iran
Hamid Rezai	Iran
Joe Breman	Israel
Carlo Cerrano	Italy
Malden Miller	Jamaica
Carl Hanson	Jamaica
Loureene Jones Smith	Jamaica
Mariko Abe	Japan
Yasuaki Miyamoto	Japan
Megumu Tsuchikawa	Japan
Nobuo Watanabe	Japan
Samuel Ndirangu	Kenya
Taratau Kirata	Kiribati
Shaker Al Hazeem	Kuwait
Bemahafaly Randriamanantsoa	Madagascar
Julian Hyde	Malaysia
Saras Suresh Kumar	Malaysia
Steve Oakley	Malaysia
Annadel Cabanban	Malaysia
Beybe Hassan Ahmed	Maldives
Jean-Luc Solandt	Maldives
Beatrice de Gaulejac	Martinique
Olivier Tyack	Mauritius
Alban Jamon	Mayotte
Julien Wickel	Mayotte
Gabriela G. Nava Martinez	Mexico (Caribbean)

Adrian Maldonaldo	Mexico (Pacific)
Yara Tibirica	Mozambique
Kevin Lee Payne	Mozambique; South Africa
Rogier Boks	Netherlands
Laurent Wantiez	New Caledonia
Jenan Anwar Alasfoor	Oman
Ann Kitalong	Palau
Porfirio Alino	Philippines
Wilfredo Licuanan	Philippines
Mike Ross	Philippines (Cebu)
Laurie Raymundo	Philippines (Dumaguete)
Carina Escudero	Philippines
Vanessa Vergara	Philippines
Jean Pascal Quod	Reunion, (France)
Sebastien Greaux	Saint Barthelemy
Valerie Gregoire	Saint Kitts and Nevis
James Hewlett	Saint Kitts and Nevis
Thomas Nelson	Saint Lucia
Allan Smith	Saint Lucia
Sophia Punnett	Saint Vincent and the Grenadines
Dianne Wilson	Saint Vincent and the Grenadines
Neil Cook	Samoa
Abdullah Alsuhaibany	Saudi Arabia
Rolph Payet	Seychelles
Justin Sih	Singapore
Jeffrey Low	Singapore
Karenne Tun	Singapore
Jesus Ruiz Lopez	Sint Maarten
Michael Schleyer	South Africa
Heung-Sik Park	South Korea
Arjan Rajasuriya	Sri Lanka
LuLu Keng	Taiwan
Allen Chen	Taiwan
Sybille Riedmiller	Tanzania
Hassan Kalombo	Tanzania
Suchana Apple Chavanich	Thailand
Kim Obermeyer	Thailand
Jenny House	Timor-Leste
Lanya Fanovich	Trinidad and Tobago
Jan-Willem van Bochove	Trinidad and Tobago
Karen Cangialosi	Turks and Caicos Islands
Rita Bento	United Arab Emirates
Alastair Harborne	United Kingdom
Alex Brylske	United States (Florida)

David Raney	United States (Oahu)
Carl Stepath	United States (Maui, Kauai)
Marc Galloway	United States
Dave Krupp	United States (Hawai'i)
David Nadeau	United States
Robin Newbold	United States (Hawai'i)
Nikole Ordway-Heath	United States (Florida)
Danny Clark	United States (Florida)
Roger Uwate	Bahrain
Norman Quinn	US Virgin Islands
Barbara Kojis	US Virgin Islands
Sandra Romano	US Virgin Islands
Jason Raubani	Vanuatu
Katie Thomson Nalesere	Vanuatu
Dam Duc Tien	Vietnam
Vo Si Tuan	Vietnam
Paino Vanai	Wallis and Futuna