Stanford

Brian Green

Physical Science Research Scientist

Earth System Science

Curriculum Vitae available Online

Bio

BIO

I'm excited to join Aditi's group, where I'll be using a new dataset of balloon observations to study stratospheric gravity waves. The pressure, temperature, and wind data from the hundreds of balloons Loon has launched provide unprecedented spatial coverage and sampling of the stratosphere at frequencies ideal for studying gravity waves. Our goals are to better understand the sources of these waves and their effect on atmospheric dynamics and circulation, and to develop better parameterizations of them for use in climate models. Before arriving at Stanford, my research focused on the dynamics of tropical rainfall: the historical influence of extratropical sea surface temperatures on it, how its distribution is coupled to the tropical ocean circulation, and how the storms that produce it contribute to the vertical profile of time mean ascent in the tropics. This research involved simplified global climate models, reconstructions of the climate from observations, and satellite observations of tropical storms.

ACADEMIC APPOINTMENTS

- Physical Science Research Scientist, Earth System Science

PROFESSIONAL EDUCATION

- PhD, Massachusetts Institute of Technology , Climate Science (2018)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My current research is on the dynamics and circulation of the stratosphere, focusing on quantifying the sources and effects of gravity waves. More broadly, I'm interested in and curious about a large range of topics relating to tropical climate, clouds, and the general circulation of the atmosphere and ocean.

Publications

PUBLICATIONS

- **The "sticky' ITCZ: ocean-moderated ITCZ shifts** *CLIMATE DYNAMICS*
  Green, B., Marshall, J., Campin, J.
  2019; 53 (1-2): 1–19
- **Modulation of Monsoon Circulations by Cross-Equatorial Ocean Heat Transport** *JOURNAL OF CLIMATE*
  Lutsko, N. J., Marshall, J., Green, B.
  2019; 32 (12): 3471–85
- **Hemispherically asymmetric trade wind changes as signatures of past ITCZ shifts** *QUATERNARY SCIENCE REVIEWS*
  Mcgee, D., Moreno-Chamarro, E., Green, B., Marshall, J., Galbraith, E., Bradtmiller, L.

2018; 180: 214–28

- **Twentieth century correlations between extratropical SST variability and ITCZ shifts** *GEOPHYSICAL RESEARCH LETTERS*
  Green, B., Marshall, J., Donohoe, A.
  2017; 44 (17): 9039–47

- **Coupling of Trade Winds with Ocean Circulation Damps ITCZ Shifts** *JOURNAL OF CLIMATE*
  Green, B., Marshall, J.
  2017; 30 (12): 4395–4411