

Alejandro Soto, Research Scientist, Dept. of Space Studies, Southwest Research Institute

Education

B.A., Physics & Astronomy, with Honors, [Dartmouth College](#), 1997

M.S., Aeronautics & Astronautics, [Stanford University](#), 2000.

Ph.D., Planetary Science, [California Institute of Technology](#), 2012.

Expertise

I have over a decade of experience developing and using atmospheric models to study the dynamics of terrestrial planets. I have used and help develop atmospheric models for Mars, Titan, and Pluto, include working with existing models such as TRAMS, MarsWRF, TitanWRF, and GFDL's FMS. I also have experience in space instrument development and operations for planetary spaceflight missions.

Professional Positions and Employment

- Research Scientist, Southwest Research Institute, 2015 – present.
- Postdoctoral Researcher, Southwest Research Institute, 2013 – 2014.
- Postdoctoral Scholar, California Institute of Technology, half of 2012.
- Postdoctoral Scholar, Colorado School of Mines, half of 2012.
- Graduate Research Assistant, California Institute of Technology, 2004 – 2011.
- Instrument/System Engineer, NASA Jet Propulsion Laboratory, 2000 – 2004.
- Graduate Research Assistant, Stanford University, 1998 – 2000.
- Experiment Support Scientist, Lockheed Martin/NASA JSC, 1997 – 1998.

Project Experience

- Co-Investigator on Project ESPRESSO, a SSERVI virtual institute. 2017 – present
- Payload Sys. Engineer, Phase A/B/C, Mars Reconnaissance Orbiter (MRO). 2001 – 2004.
- Instrument Sys. Engineer on the Terrestrial Planet Finder (TPF) program. 2003 – 2004.
- Science Sys. Engineer, Phase C/D, NASA JPL's Deep Impact Mission. Launch: 2002 – 2004.
- Lead Instrument Engineer for NASA JPL's MATMOS instrument. 2002 – 2004.
- Integration and Test Engineer, Phase C/D, Stanford's OPAL satellite. Launch: 1998 – 1999.

Selected Publications/Abstracts

Soto, A. and Rafkin, S. C. (2016). Air-Sea Interactions over Lakes on Titan. In *AAS/Division for Planetary Sciences Meeting Abstracts*, volume 48.

McDonald, G. D., Hayes, A. G., Ewing, R. C., Lora, J. M., Newman, C. E., Tokano, T., Lucas, A., **Soto, A.**, and Chen, G. (2016). Variations in Titan's dune orientations as a result of orbital forcing. *Icarus*, 270:197–210, doi:10.1016/j.icarus.2015.11.036.

Soto, A., M.A. Mischna, T. Schneider, C. Lee, M.I. Richardson (2015), ``[Martian atmospheric collapse: Idealized GCM studies](#)"', *Icarus*, 250:553-569, doi: 10.1016/j.icarus.2014.11.028.

Guo, X., M. I. Richardson, **A. Soto**, and A. Toigo (2010), ``[On the mystery of the perennial carbon dioxide cap at the south pole of Mars](#)"', *Journal of Geophysics Research*, 115, E04005, doi:10.1029/2009JE003382.

Heverly, M., S. Dougherty, G.C. Toon, **A. Soto**, and J.-F. Blavier (2004), ``A low mass translation mechanism for planetary FTIR spectrometry using an ultrasonic linear motor"', *Proceedings of the 37th Aerospace Mechanisms Symposium*.