



**MICHAEL H. WONG**  
CARL SAGAN CENTER  
SETI INSTITUTE  
189 BERNARDO AVE STE 200  
MOUNTAIN VIEW CA 94043

mikewong@seti.org  
[astro.berkeley.edu/~mikewong](mailto:mikewong@astro.berkeley.edu)

510/224-3411 (voice)  
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## ► Relevant experience

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Mike Wong is a planetary scientist focusing on planetary atmospheres, with appointments at the SETI Institute, UC Berkeley, and University of Michigan. His analysis of data from the mass spectrometer on the Galileo probe launched his interest in cloud-forming gases in Jupiter's atmosphere. Later, he participated with the Cassini/CIRS team in the discovery of the signature of ammonia ice in Jupiter's thermal spectrum. Mike Wong is a Participating Scientist on the Juno mission to Jupiter, and a Mars Science Laboratory Collaborator, where he uses Sample Analysis at Mars (SAM) and Rover Environmental Monitoring Station (REMS) data to understand the dynamic composition of the Mars atmosphere. He leads Hubble/WFC3 and Gemini North/NIRI imaging programs in support of Juno observations, and is a founding member of the multi-cycle OPAL program that conducts annual observations of the giant planets with Hubble.

## ► Education and professional experience

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**Ph.D. and M.S. in Atmospheric and Space Sciences.** (April 2001, June 1998) University of Michigan, Ann Arbor.

**A.B. in Astrophysics.** (May 1994) University of California, Berkeley (with honors).

**Research Scientist.** (2010–present) SETI Institute, Carl Sagan Center for Research. **Juno Participating Scientist.** (2019–present) Microwave Radiometer (MWR) science team, Atmospheric Working Group.

**Associate Researcher** (July 2016–present), **Assistant Researcher** and other research titles (Sept. 2003–June 2016), **Lecturer** (2004–2005, 2007–2008). UCB Center for Integrative Planetary Science and Astronomy Department.

**Visiting Research Scientist.** (Mar 2012–Aug 2014) University of Michigan, Department of Atmospheric, Oceanic, and Space Sciences. **MSL Collaborator.** (Mar 2012–present) Sample Analysis at Mars instrument suite.

**Visiting Scientist.** (Feb 2009–Feb 2010) Space Telescope Science Institute. **WFC3 Instrument Team.**

**National Research Council Research Associate.** (May 2001–July 2003) NASA Goddard Space Flight Center.

**Advisory Service.** (Current) ASA PDS (AG member, Planetary Atmospheres Node). JWST (AG member, Data Analysis). Thirty Meter Telescope (Convener, Solar System ISDT; Science Team, IRIS). Keck/UC Observatories (Task Force member, Adaptive Optics; Science Team, Liger and SCALES). NASA OPAG (occasional participant).

## ► Scientific, technical, and management performance

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**Research program leadership.** Produced publications and performance reports as PI (and institutional PI) of several NASA grants (NASA-JunoPS, STScI-HST GO, STScI-HST AR, NASA-OPR, NASA-CDAPS, NASA-SSO). Current PI of Juno-supporting observing/research programs (HST, Gemini) and Neptune observing programs (HST).

**Student research mentor.** Coached three papers led by student mentees (2010, 2017, 2019), and managed student contributions to many other publications (2004–present).

**Book editor.** Managed contributions from 48 scientists and engineers to produce the first on-orbit edition of the *WFC3 Instrument Handbook* (2010). Also produced technical reports (ISRs and a TIR) at STScI on WFC3/UVIS instrument calibration (2009–2010).

**Instrument/mission/observatory/proposal/study teams.** Performed science advising, research, operations, and calibration tasks: Thirty-Meter Telescope (ISDT, 2014+), TMT IRIS instrument (Science Team, 2015+). SNAP mini Uranus probe (NASA-PSDS3 2016). NASA Juno (Participating Scientist, MWR and JunoCam teams, 2019+). NASA Mars Science Laboratory (SAM and REMS collaborator, ENV science theme lead, 2012+). NASA-ESA HST (WFC3 Instrument Team, 2009–2010). Solar system space telescopes (NASA DSCME 2007, Discovery 2014, PMCS 2018). Cassini CIRS (NRC Postdoc, 2001–2003). Galileo Probe Mass Spectrometer (NASA-GSRP, 1995–2001).

## ► Select publications

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- Wong, M.H., A.A. Simon, J.W. Tollefson, I. de Pater, M.N. Barnett, A.I. Hsu, A.W. Stephens, G.S. Orton, S.W. Fleming, C. Goullaud, W. Januszewski, A. Roman, G.L. Bjoraker, S.K. Atreya, A. Adriani, L.N. Fletcher (2020) High-resolution UV/optical/IR imaging of Jupiter in 2016-2019. *The Astrophysical Journal Supplement Series*, 247, 58 (25 pp.).
- Trainer, M.G., M.H. Wong, and 15 authors (2020) Seasonal variations in atmospheric composition as measured in Gale Crater, Mars. *Journal of Geophysical Research: Planets* 124, 3000-3024.
- Sayanagi, K.M., R.A. Dillman, D.H. Atkinson, J. Li, S. Saikia, A.A. Simon, T.R. Spilker, M.H. Wong and 25 authors (2020) Small Next-Generation Atmospheric Probe (SNAP) Concept to Enable Future Multi-Probe Missions: A Case Study for Uranus. *Space Science Reviews* 216, 72 (47 pp.).
- Hsu, A.I., M.H. Wong, and A.A. Simon (2019) Lifetimes and Occurrence Rates of Dark Vortices on Neptune from 25 Years of Hubble Space Telescope Images. *The Astronomical Journal* 157, 152 (9 pp.).
- Wong, M.H., J. Tollefson, A.I. Hsu, I. de Pater, A.A. Simon, R. Hueso, A. Sánchez-Lavega, L. Sromovsky, P. Fry, S. Luszcz-Cook, H. Hammel, M. Delcroix, K. de Kleer, G.S. Orton, and C. Baranec (2018) A new dark vortex on Neptune. *The Astronomical Journal* 155, 117.
- Simon, A.A., F. Tabataba-Vakili, R. Cosentino, R.F. Beebe, M.H. Wong, G.S. Orton (2018) Historical and contemporary trends in the size, drift, and color of Jupiter's Great Red Spot. *Astron. Journal* 155, 151 (13 pp.).
- Tollefson, J.W., M.H. Wong, I. de Pater, A.A. Simon, G.S. Orton, J.H. Rogers, S.K. Atreya, R.G. Cosentino, W. Januszewski, R. Morales-Juberías, P.S. Marcus (2017) Changes in Jupiter's Zonal Wind Profile preceding and during the Juno mission. *Icarus* 296, 163-178.
- de Pater, I., R.J. Sault, B. Butler, D. DeBoer, M.H. Wong (2016) Peering through Jupiter's Clouds with Radio Spectral Imaging. *Science* 352, 1198-1201.
- Wright, S.A. and 38 authors (2016) The infrared imaging spectrograph (IRIS) for TMT: latest science cases and simulations. *Adaptive Optics Systems V* 9909, 990905 (15 pp.).
- Simon, A.A., M.H. Wong, and G.S. Orton (2015) First Results from the Hubble OPAL Program: Jupiter in 2015. *The Astrophysical Journal* 812, 55 (8 pp.).
- Ádámkóvics (2015) Jupiter's Deep Cloud Structure Revealed Using Keck Observations of Spectrally Resolved Line Shapes. *The Astrophysical Journal* 810, 122 (10 pp.).
- Wong, M.H., S.K. Atreya, W.R. Kuhn, P.N. Romani, and K.M. Mihalka (2015) Fresh clouds: A parameterized updraft method for calculating cloud densities in one-dimensional models. *Icarus* 245, 273-281.
- Wong, M.H., S.K. Atreya, P.R. Mahaffy, H.B. Franz, C. Malespin, M.G. Trainer, P.G. Conrad, H.L.K. Manning, R.O. Pepin, R.H. Becker, C.P. McKay, T.C. Owen, R. Navarro-González, J.H. Jones, B.M. Jakosky, A. Steele (2013) Isotopes of nitrogen on Mars: Atmospheric measurements by Curiosity's mass spectrometer. *Geophysical Research Letters* 40, 6033-6037.
- Wong, M.H., I. de Pater, X.S. Asay-Davis, P.S. Marcus, C.Y. Go (2011) Vertical structure of Jupiter's Oval BA before and after it reddened: What changed? *Icarus* 215, 211-225.
- Lii, P.S., M.H. Wong, I. de Pater (2010) Temporal variation of the tropospheric cloud and haze in the jovian equatorial zone. *Icarus* 209, 591-601.
- Wong, M.H., C. Pavlovsky, and K. Long, eds. (2010) *Wide Field Camera 3 Instrument Handbook, Version 2.0*. Space Telescope Science Institute, Baltimore MD.
- Hammel, H.B., M.H. Wong, J.T. Clarke, I. de Pater, L.N. Fletcher, R. Hueso, K. Noll, G.S. Orton, S. Pérez-Hoyos, A. Sánchez-Lavega, A.A. Simon-Miller, P.A. Yanamandra-Fisher (2010) Jupiter after the 2009 impact: Hubble Space Telescope imaging of the impact-generated debris and its temporal evolution. *Ap. J. Letters* 715, L150-L154.
- Asay-Davis, X.S., P.S. Marcus, M.H. Wong, I. de Pater (2009) Jupiter's shrinking Great Red Spot and steady Oval BA: Velocity measurements with the "Advection Corrected Correlation Image Velocimetry" automated cloud-tracking method. *Icarus* 203, 164-188.
- Wong, M.H., J. Lunine, S.K. Atreya, T. Johnson, P.R. Mahaffy, T.C. Owen, T. Encrenaz (2008) Oxygen and other volatiles in the giant planets and their satellites, in *Reviews in Mineralogy and Geochemistry: Oxygen in the Earliest Solar System*, Chapter 10 (G. MacPherson, D.W. Mittlefehldt, J. Jones, S.B. Simon, and S. Mackwell, eds.), Mineralogical Society of America, Chantilly, VA.
- Wong, M.H., G.L. Bjoraker, M.D. Smith, F.M. Flasar, C.A. Nixon (2004) Identification of the 10- $\mu$ m ammonia ice feature on Jupiter. *Planetary and Space Science* 52, 385-395.
- Wong, M.H., P.R. Mahaffy, S.K. Atreya, H.B. Niemann, T.C. Owen (2004) Updated Galileo probe mass spectrometer measurements of carbon, oxygen, nitrogen, and sulfur on Jupiter. *Icarus* 171, 153-170.