

Manar Al Asad

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WORK

05/2016 - Present

EXPERIENCE

Planetary Research Scientist – UBC, Vancouver Canada

- Conduct advanced scientific research in the areas of global magnetic fields and solar wind interactions.
- Train undergraduate RA in scientific programming and thinking. Supervise their research work for the aim of publication.
- Create global and local shape models of asteroid Bennu.
- Develop tools for the quality control of the data products.

02/2019 – Present

OLA Deputy Instrument Scientist – OSIRIS-REx Mission

- Create and supervise implementations of science plans to achieve mission objectives.
- Troubleshoot irregularities with instrument performance and conduct investigations into their causes.
- Be person of contact for mission engineers during instrument operations.

09/2017 – 01/2018

09/2018 – 01/2019

Sessional Lecturer – UBC, Vancouver Canada

09/2018 – 01/2019

Exploration Geophysicist – Saudi Aramco, Dhahran Saudi Arabia

EDUCATION

2009 - 2014

Bachelor Degree of Geophysics major and Math minor,
University of British Columbia (UBC)

2002 - 2004

Certified as Data Analyst, Data Analyst Certification, Technical
University of Madrid

TEACHING

- EOSC450: Potential Fields in Earth and Planetary Sciences (UBC,

Fall 2017, 2018)

- EOSC211: Computer Methods in Earth, Ocean, and Atmospheric Science (UBC, Fall 2017, Guest Lecturer)
- Planetary Magnetic Fields: 4th IAGIA School (Station de biologie des Laurentides, Montreal, Canada)

MISSION INVOLVEMENT

- MErcury Surface, Space Environment, Geochemistry and Ranging (MESSENGER) – Participant in science team meetings, 2012-2014
- Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer (OSIRIS-REx) – Deputy Instrument Scientist and Collaborator

TECHNICAL SKILLS

Programming: MATLAB

AWARDS

- NASA group achievement award for MESSENGER magnetic team.
- PI office appreciation award from OSIRIS-REx PI.

PUBLICATIONS

- **M. Al Asad**, C. L. Johnson. "Mercury's bifurcated tail current sheet : Magnetically-derived evidence for ion non-adiabatic behaviour". In prep
- D. S. Laretta, C. W. Hergenrother, S. R. Chesley, J. M. Leonard, J. Y. Pelgrift, C. D. Adam, **M. Al Asad**, et al. "REx discovery of particle ejection from asteroid (101955) Bennu", (2019), *Science*
- D. R. Golish, D. N. DellaGiustina, J.-Y. Li, B. E. Clark, X.-D. Zou, J. L. Rizos, P. Hasselmann, C. A. Bennett, R.-L. Ballouz, **M. Al Asad**, et al. "Imaging Spectrophotometric Behavior of the Surface of Asteroid (101955) Bennu". Submitted to *Icarus*
- O.S. Barnouin, M. G. Daly, E. E. Palmer, C. L. Johnson, R. W. Gaskell, **M. Al Asad**, et al. "Digital terrain mapping by the OSIRIS-REx mission". In press, *Space Science Direct*.
- R. M. Winslow, N. Lugaz, L. Philpott, C. J. Farrugia, C. L. Johnson, B. J. Anderson, C. S. Paty, N. A. Schwadron, **M. Al Asad**. "First observations of an ICME compressing Mercury's dayside magnetosphere to the surface".(2019) Accepted , *ApJ*
- O. S. Barnouin, M. G. Daly, E. E. Palmer, R. W. Gaskell, J. R. Weirich, C. L. Johnson, **M. M. Al Asad** et al. "Shape of (101955) Bennu indicative of a rubble pile with internal stiffness" *Nature Geoscience*. 12, 247-252
- D. J. Scheeres, J. W. McMahon, A. S. French, D. N. Brack, S. R. Chesley, D. Farnocchia, Y. Takahashi, J. M. Leonard³, J. Geeraert,

B. Page, P. Antreasian, K. Getzandanner, D. Rowlands, E. M. Mazarico, J. Small, D. E. Highsmith, M. Moreau, J. P. Emery, B. Rozitis, M. Hirabayashi, P. Sánchez, S. Van wal, P. Tricarico, R.-L. Ballouz, C. L. Johnson, **M. M. Al Asad**, et al (2019). "The dynamic geophysical environment of (101955) Bennu based on OSIRIS-REx measurements". *Nature Astronomy*. 3, 352-361

- H. Korth, N. A. Tsyganenko, C. L. Johnson, L. C. Philpott, B. J. Anderson, **M. Al Asad**, S. C. Solomon, R. L. McNutt, "Modular model for Mercury's magnetospheric magnetic field confined within the average observed magnetopause". *JGR Space Physics*, doi:10.1002/2015JA021022.
- C. L. Johnson, M. E. Purucker, H. Korth, B. J. Anderson, R. M. Winslow, **M. M. Al Asad**, J. A. Slavin, Igor. I. Alexeev, R. J. Phillips, M. T. Zuber, and S. C. Solomon. MESSENGER observations of Mercury's magnetic field structure, *J. Geophys. Res.*, 117, E00L14, 10.1029/2012JE004217, 2012

SELECTED ABSTRACTS

- **M. M. Al Asad**, C. L. Johnson, O. S. Barnouin, M. Daly, E. Palmer, M. E. Perry, R. Gaskell, B. Beirhaus, J. Seabrook, R. Espiritu, H. Nair, H. C. M. Susorney, D. S. Laretta. "How Good are our Efforts? Evaluating the Stereophotoclinometry (SPC)-Derived shape mode of Asteroid Bennu". *LPSC, 2019*
- **M. M. Al Asad**, C. L. Johnson. "Observations of Bifurcated Current Sheets in Mercury's Magnetotail: Causes and Implications". *AGU Fall Meeting, 2019*
- **M. M. Al Asad**, C. L. Johnson and L. Philpott. "The Topology and Dynamic Properties of Mercury's Tail Plasma and Current Sheets." *Mercury 2018 Conference*.