Dylan Hickson
Ph.D. Candidate/Graduate Research Assistant

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Education

- **York University** — Toronto, Canada
  PhD Earth & Space Science — *2014 - present*
  - PhD thesis: Complex Permittivity Measurements of Planetary Regolith Analogue Materials for Radar Applications

- **McMaster University** — Hamilton, Canada
  BSc Honours Earth and Environmental Science — *2009 - 2014*
  BSc Physical Science — *2009 - 2014*
  - undergraduate thesis: 3-D Ground Penetrating Radar (GPR) survey of a White Pine (Pinus Strobus) root system: comparison of grid-based versus radial survey methods
  - Research Internship with the Environmental and Archaeological Geophysics Laboratory

Professional Experience

- **Ontario Ministry of Agriculture and Food (OMAF)** — Guelph, Canada
  Agricultural Geomatics Assistant — *2013 - 2014*
  - Performed ground truthing of remote sensing data throughout Southern Ontario to correlate with field classification schemes
  - Developed methodology for ground truthing surveys and digitization of data

Projects and Collaborations

- **2015 CanMars MSR Analogue Mission (Western University)** — London, Canada
  LiDAR Instrument Science Team — *November, 2015*
  - Analysis and processing of LiDAR point cloud data collected by rover
  - Interpretation of data relevant to mission objectives
  - Participation in planning rover operations

- **Stelida Naxos Archaeological Project (McMaster University)** — Naxos, Greece
  Database Developer / Field Worker — *August, 2014*
  - Designed and implemented a database structure to store all data collected
  - Contributed to cartographic/geologic interpretation

Peer reviewed journal articles published, submitted, and in review

Hickson, D., Boivin, A., Daly, M.G., Ghentm R., Nolan, M.C., Tait, K., Cunje, A., Tsai, C-A. (2017) Near surface bulk density estimages of NEAs from radar observations and permittivity measurements of powdered geologic material. *Submitted to Icarus*.

Hickson, D., Sotodeh, S., Daly, M., Ghent, R., Nolan, M.C. (2017) Improvements on effective permittivity measurements of powdered alumina: Implications for bulk permittivity properties of asteroid regoliths. *Advances in Space Research* 59.1, 472-482.

Conference poster presentations

Boivin, A., **Hickson, D.**, Cunje, A., Tsai, C-A., Ghent, R.R., Daly, M.G. (2016), Measurements in Vacuum of the Effect of Ilmenite on the Complex Dielectric Permittivity of Planetary Regolith Analog Materials. Abstract [P51C-2148] presented as a poster at *2016 Fall Meeting, AGU*, San Francisco, Calif., USA, 12-16 Dec.

Hickson, D., Sotodeh, S., Daly, M., Ghent, R. (2016), Boundary Conditions Modelling of Permittivity Measurements of Powders in Coaxial Airline. Abstract [2137] presented as a poster at *47th Lunar and Planetary Science Conference (LPSC)*, The Woodlands, TX, USA, 21-25 Mar.

Zylberman, W., **Hickson, D.**, Haid, T., Osinski, G.R. (2016), 2015 CanMars MSR Analogue Mission: The Key Role of LiDAR in Rover Navigation and Potential for Future Missions. Abstract [1041] presented as a poster at *47th LPSC*, The Woodlands, TX, USA, 21-25 Mar.

Boivin, A., **Hickson, D.**, Cunje, A., Ghent, R., Daly, M. (2016), Broadband Measurements of Dielectric Permittivity of Planetary Regolith Analogue Materials using a Coaxial Transmission Line in Vacuum. Abstract [2025] presented as a poster at *47th LPSC*, The Woodlands, TX, USA, 21-25 Mar.

Hickson, D., Daly, M., Ghent, R., Boivin, A., Cunje, A., Tsai, C-A. (2015), Complex Permittivity Measurements of Powders. Poster presented at *9th OSIRIS-REx Science Team Meeting*, John Hopkins Applied Physics Laboratory, Laurel, MD, USA, 20-22 Oct.

Boivin, A., Tsai, C-A., **Hickson, D.**, Ghent, R., Daly, M. (2015), Preliminary Broadband Measurements of Dielectric Permittivity of Planetary Regolith Analogue Materials Using a Coaxial Transmission Line. Abstract [2487] presented as a poster at *46th LPSC*, The Woodlands, TX, USA, 16-20 Mar.

Hickson, D., Nussli, E., Steckley, Z., Sweeney, S. (2014), Agricultural Landscapes of the City of Ottawa: Mobile Mapping Groundtruth Results 2014. Poster presented at *Canadian Association of Geographers-Ontario Division Annual Meeting (CAGONT)*, York University, Toronto, ON, Canada, 24-25 Oct.

Nussli, E., Anwar, S., Gardner, S., **Hickson, D.**, Shaw, A., Steckley, Z., Vanthof, V., Sweeney, S. (2014), Leamington Townships Agricultural Landscape Pre and Post the Heinz Company Tomato Supply Era: A Detailed Field-by-Field Comparison of the 2013 and 2014 Cropping Seasons. Poster presented at *CAGONT*, Toronto, ON, Canada, 24-25 Oct.

Anwar, S., Goodfellow, S., Caldwell, J., Gardner, S., **Hickson, D.**, Smith, D., Steckley, Z., Sweeney, S. (2014), The Northern Bruce Peninsula Agricultural Landscape: Multi-temporal Observations with Mobile Mapping Technology. Poster presented at *CAGONT*, York University, Toronto, ON, Canada, 24-25 Oct.

Conferences Attended

47^{th} Lunar and Planetary Science Conference *March 21-25, 2016*
The Woodlands, TX, USA

9^{th} OSIRIS-REx Science Team Meeting *October 20-22, 2015*
John Hopkins Applied Physics Laboratory, Laurel, MD, USA

NSERC CREATE Annual Meeting *June 7-8, 2015*
Technologies and Techniques for Earth & Space Exploration
Queens University, Kingston, ON, Canada

CAGONT Annual Meeting *October 24-25, 2014*
York University, Toronto, ON, Canada

NSERC CREATE Annual Meeting *June 12-13, 2014*
Technologies and Techniques for Earth & Space Exploration
University of Toronto Institute for Aerospace Studies, Toronto, ON, Canada

Technical Skills

Programming Experience
MATLAB, Python, IDL, HTML/CSS, LaTeX

Software Proficiency
ArcGIS, JMARS, Microsoft Office, Git

Laboratory Experience

- Geophysical surveying & general field techniques
- Experimental design/implementation of process control (temp./press.) and dielectric characterization (VNA/coaxial transmission line, cylindrical resonant cavity)
- SEM/EDS, geologic sample processing/characterization

Awards, Grants & Honours

Mensa Canada Scholarship, $2,000 . . . . . *2017 - 2018*

Ontario Graduate Scholarship (OGS), $15,000 . . . . . *2017 - 2018*

The Carswell Scholarship, $10,000 . . . . . *2016 - 2017*

York Graduate Scholarship, $3,000 . . . . . *2016 - 2017*

NSERC CREATE Graduate Student Fellowship, $2,000 . . . . . *2014 - 2016*

McMaster Deans Honour List . . . . . *2013 - 2014*