

Benoît Seignovert

POSTDOC · ASTROPHYSICIST

Jet Propulsion Laboratory, Pasadena, CA USA

✉ benoit.seignovert.fr

Employment

Jet Propulsion Laboratory (JPL)

POST-DOCTORAL RESEARCHER

Pasadena, CA USA

Oct. 2018 - Present

- Mission: Characterization of Titan's clouds and haze structure to model transit spectra of exoplanets.

Laboratory of Planetology and Geodynamics (LPG)

RESEARCH ENGINEER / POST-DOCTORAL RESEARCHER

Nantes, France

Jan. - Sept. 2018

- Mission: Design of the [Cassini VIMS Data Portal](#), a web interface to get the calibrated Cassini-VIMS data.
- Employer: CNRS - Délégation Bretagne et Pays de Loire

Group of Molecular and Atmospheric Spectroscopy (GMSA)

RESEARCH ENGINEER

Reims, France

Oct. - Dec. 2017

- Mission: Development of analysis tools for the Cassini-ISS instrument.
- Employer: CNRS - Délégation Centre Est

Education

University of Reims Champagne-Ardenne

DOCTOR OF PHILOSOPHY (ASTRONOMY & ASTROPHYSICS)

Reims, France

2014 - 2017

- Thesis title: Analysis of Titan's Detached Haze Layer with Cassini-ISS instrument
- Supervisors: Prof Pascal RANNOU and Dr Panayotis LAVVAS

École Normale Supérieure de Lyon

MASTER DEGREE IN EARTH AND PLANETARY SCIENCE (WITH HONOURS)

Lyon, France

2011 - 2014

Research Internships

Cassini high resolution navigation with star catalogues

SUPERVISOR: ROBERT A. WEST

JPL, Pasadena, USA

Mar. - Apr. 2017

- Full calibration and deconvolution of ISS data
- Star navigation with the Tycho & GAIA catalogues

Modeling radar response of Linear Dunes and Mega-Yardangs on Earth and Titan

SUPERVISOR: PHILIPPE PAILLOU

LAB, Bordeaux, France

Jan. - Jul. 2014

- Cassini and TerraSAR-X radar image analysis
- SRTM and GDEM data processing
- Radar backscattering modeling

Cassini VIMS image processing on Titan

SUPERVISOR: CHRISTOPHE SOTIN

JPL, Pasadena, USA

May - Aug. 2013

- Hyperspectral infrared image processing
- Image navigation and mapping
- Gravitational fields analysis

Analysis on stable tungsten isotopes in iron meteorites

SUPERVISORS: BRETON THOMAS & QUITTÉ GHYLAINE

ÉNSL, Lyon, France

Jan. - Apr. 2013

- Iron meteorites sampling
- Isotopic chemistry extraction
- ICP mass spectrometry

Characterization of thermal history on primitive meteorites

SUPERVISOR: LYDIE BONAL

IPAG, Grenoble, France

Jun. - Jul. 2012

- Carbon micro-meteorites sampling
- IR and RAMAN spectroscopy
- MEB and synchrotron imaging (ESRF)

Morphology studies on Martian barchans based on MRO/CTX images

SUPERVISOR: PASCAL ALLEMAND

- MRO CTX data processing
- Image mapping and stereoscopy reconstruction

LGLTPE, Lyon, France

Jun. – Jul. 2012

Telescopic Interferometry applied to planetary and stellar measurements

SUPERVISORS: ÉRIC THIÉBAULT & JACQUE VALADE

- Telescopic survey of Jupiters' moons
- Interferometry modeling

CRAL, Lyon, France

Apr. 2009 – Jun. 2011

Peer review publications

First-author publications:

- 2 HAZE SEASONAL VARIATIONS OF TITAN'S UPPER ATMOSPHERE DURING THE CASSINI MISSION *in prep.*
Seignovert B., Rannou P., West R.A. & Vinatier S.
- 1 AEROSOLS OPTICAL PROPERTIES IN TITAN'S DETACHED HAZE LAYER BEFORE THE EQUINOX *2017*
Seignovert B., Rannou P., Lavvas P., Cours T. & West R.A. *Icarus*

Second-author publications:

- 5 TITAN'S GEOID AND HYDROLOGY: IMPLICATIONS FOR THE FORMATION OF THE POLAR CAPS *in prep.*
Sotin C., Seignovert B., Lawrence K.J. & MacKenzie S.M.
- 4 LANDSCAPE FORMATION ON TITAN: A 3D KARST LANDSCAPE EVOLUTION MODEL *in prep.*
Cornet T., Seignovert B., Fleurant C., Cordier D., Bourgeois O., Le Mouélic S., Rodriguez S. & Lucas A.
- 3 TITAN'S DETACHED HAZE SEASONAL CYCLE *2018*
West, R.A., Seignovert B., Rannou P., Dumont Ph., Turtle, P., Perry J., Roy M. & Ovanessian A. *Nature Astronomy*
- 2 TRANSPARENCY OF 2 μ M WINDOW OF TITAN'S ATMOSPHERE *2017*
Rannou P., Seignovert B., Le Mouélic S., Maltagliati L. & Sotin C. *Planetary and Space Science*
- 1 RADAR SCATTERING OF LINEAR DUNES AND MEGA-YARDANGS: APPLICATION TO TITAN *2016*
Paillou Ph., Seignovert B., Radebaugh J. & Wall S. *Icarus*

N-author publications:

- 3 THE 3.4 μ M ABSORPTION OF THE TITAN'S STRATOSPHERE: CONTRIBUTION OF ETHANE, PROPANE, BUTANE AND PAH *in prep.*
Cordier D., Cours T., Seignovert B., Maltagliati L., Rey M., Brunel JM., Biennier L.
- 2 THE CASSINI VIMS ARCHIVE OF TITAN: FROM BROWSE PRODUCTS TO GLOBAL INFRARED COLOR MAPS *2019*
Le Mouélic S., Cornet T., Rodriguez S., Sotin C., Seignovert B., Barnes J.W., Brown R.H., Baines K.H., Buratti B.J., Clark R.N., Nicholson Ph.D., Lasue J., Soderblom J. *Icarus*
- 1 MAPPING POLAR ATMOSPHERIC FEATURES ON TITAN WITH VIMS: FROM THE DISSIPATION OF THE NORTHERN CLOUD TO THE ONSET OF A SOUTHERN POLAR VORTEX *2018*
Le Mouélic S., Rodriguez S., Robidel R., Rousseau B., Seignovert B., Sotin C., Barnes J.W., Brown R.H., Baines K.H., Buratti B.J., Clark R.N., Nicholson Ph.D., Rannou P., Cornet T. *Icarus*

Seminars & Conference Talks

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| 2018 | European Planetary Science Congress (EPSC) | <i>Berlin, Germany</i> |
| 2018 | Committee on Space Research (COSPAR) | <i>Pasadena, USA</i> |
| 2018 | European Geosciences Union (EGU) | <i>Vienna, Austria</i> |
| 2017 | European Planetary Science Congress (EPSC) | <i>Riga, Latvia</i> |
| 2017 | European Geosciences Union (EGU) | <i>Vienna, Austria</i> |
| 2017 | 48th Lunar and Planetary Science Conference (LPSC) | <i>Houston, USA</i> |
| 2016 | Division for Planetary Science (DPS) | <i>Pasadena, USA</i> |
| 2016 | Titan Surface Meeting (TSW) | <i>Paris, France</i> |
| 2016 | Titan Aeronomy and Climate workshop (TAC) | <i>Reims, France</i> |
| 2015 | European Planetary Science Congress (EPSC) | <i>Nantes, France</i> |

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| 2014 | Reunion des Sciences de la Terre (RST) | <i>Pau, France</i> |
| 2014 | Workshop on the Habitability of Icy Worlds | <i>Pasadena, USA</i> |
| 2013 | American Geophysical Union (AGU) | <i>San Francisco, USA</i> |
| 2013 | European Geological Union (EGU) | <i>Vienna, France</i> |
| 2012 | Annual Meteoritical Society Meeting (MetSoc) | <i>Cairns, Australia</i> |

Training

Summer schools

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|-----------|--|-------------------------|
| Jun. 2015 | Spec-Atmos , CNRS | <i>Fréjus, France</i> |
| Jul. 2014 | Space missions for geophysics of the terrestrial planets , ESA/FFG/CNES | <i>Alpbach, Austria</i> |

Field works

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| Oct. 2012 | Stratigraphy analysis of sedimentary basin | <i>Blieux, France</i> |
| Oct. 2012 | Geomorphology in ophiolitic context | <i>Mt Chenaillet, France</i> |
| May 2012 | Sedimentology, Metamorphism and Volcanism | <i>Tournon & Puy de Sancy, France</i> |
| Apr. 2012 | Marine Seismology | <i>Nice, France</i> |
| Oct. 2011 | Geology Mapping | <i>Le Mas, France</i> |
| Sep. 2011 | Initiation to geology field work | <i>Cucugnan, France</i> |

Honors & Awards

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| 2014 – 2017 | Doctor of Philosophy Scholarship , French Ministry of Research | <i>Reims, France</i> |
| 2014 | ESA summer school Alpbach grant , CNES | <i>Alpbach, Austria</i> |
| 2013 | EXPLORA travel grant for international interns , Rhône-Alpes region | <i>Pasadena, USA</i> |

Outreach

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| 2015 | Airburst over Chelyabinsk and small impactors | <i>GSMA Journal Club</i> |
| 2014 | La chute de la météorite de Tcheliabinsk (Russie) du 15 février 2013, un an après | <i>Planet Terre</i> |

Leadership & Community Service

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| Cassini VIMS Data Portal | <i>Nantes, France</i> |
| DESIGNER & WEBMASTER: vims.univ-nantes.fr | 2018 |
| Fireball Recovery and InterPlanetary Observation Network (FRIPON) | <i>Reims, France</i> |
| MEMBER & LOCAL TECHNICAL SUPPORT | 2016-2017 |
| Astro-Café Parisien | <i>Paris, France</i> |
| MEMBER | 2016-2017 |
| Titan Aeronomy & Climate workshop | <i>Reims, France</i> |
| CO-ORGANIZER & WEBMASTER: planeto.univ-reims.fr/tac | 2016 |
| ÉNS Lyon Astro club – têteENSi'air | <i>Lyon, France</i> |
| PRESIDENT & WEBMASTER: bde.ens-lyon.fr/clubs/astro | 2011-2014 |

Skills

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| Programming | Python 2/3, Fortran, C/C#, Bash, T _E X, Matlab, Julia, IDL |
| Data analysis | PDS, NAIF, ISIS, ENVI, ArcGIS, Maple, Mathematica, Abinit, Yorick |
| WebDev | PHP (Symfony), HTML5, CSS, (coffee/node)JS, Yarn/npm, Gulp, Go(lang) |
| Database | SQLite, MySQL |
| Management | Git (CI/CD), Docker, Apache/Nginx, DNS/MX records |
| Photography | Ligtroom, Photoshop, PTGui, Inkscape |
| Virtual Reality | Povray, Unity, Blender |

Activities

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| Astronomy | Nightscape to deep field observation and survey |
| Photography | Digital / B&W film capture and processing: photos.seignovert.fr |
| Sports | Walking/Hiking/Trekking, Skiing, Climbing, Mountain biking |
| Music | Flutist, Oboist, Rock band bassist |

Other

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| Citizenship | French |
| Birth year | 1990 (28 years old) |
| Languages | French (native), English (fluent, CLES B2), Russian, German, Ancient Greek |
| Driving | French B/European licence |