

# Benoît Seignovert

POSTDOC · ASTROPHYSICIST

LPG, University of Nantes, Nantes, FRANCE

📧 [planeto.univ-reims.fr/seignovert](mailto:planeto.univ-reims.fr/seignovert)

## Employment

### Laboratory of Planetology and Geodynamics (LPG)

Nantes, France

POSTDOC/RESEARCH ENGINEER

Jan. - Jul. 2018

- Mission: Build 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)

Reims, France

RESEARCH ENGINEER

Oct. - Dec. 2017

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

## Education

### University of Reims Champagne-Ardenne

Reims, France

DOCTOR OF PHILOSOPHY (ASTRONOMY & ASTROPHYSICS)

2014 - 2017

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

### École Normale Supérieure of Lyon

Lyon, France

MASTER DEGREE IN EARTH AND PLANETARY SCIENCE (WITH HONOURS)

2011 - 2014

- Master 2: Score 15.56/20 - Rank 2/8 | Master 1: Score 15.41/20 - Rank 4/30 | ECTS: 240

BACHELOR OF GEOSCIENCE (WITH HONOURS)

- Semester 2: Score 15.81/20 - Rank 1/36 | Semester 1: Score 14.44/20 - Rank 7/36 | ECTS: 180

## Research Internships

### Cassini high resolution navigation with star catalogues

JPL, Pasadena, USA

SUPERVISOR: ROBERT A. WEST

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

LAB, Bordeaux, France

SUPERVISOR: PHILIPPE PAILLOU

Jan. - Jul. 2014

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

### Cassini VIMS image processing on Titan

JPL, Pasadena, USA

SUPERVISOR: CHRISTOPHE SOTIN

May - Aug. 2013

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

### Analysis on stable tungsten isotopes in iron meteorites

ÉNSL, Lyon, France

SUPERVISORS: BRETON THOMAS & QUITTÉ GHYLAINE

Jan. - Apr. 2013

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

### Characterization of thermal history on primitive meteorites

IPAG, Grenoble, France

SUPERVISOR: LYDIE BONAL

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

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### 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  $\mu\text{m}$  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  $\mu\text{m}$  ABSORPTION OF THE TITAN'S STRATOSPHERE: CONTRIBUTION OF ETHANE, PROPANE, BUTANE AND PAH submitted  
*Cordier D., Cours T., Seignovert B., Maltagliati L., Rey M., Brunel JM., Biennier L.* Icarus
- 2 THE CASSINI VIMS ARCHIVE OF TITAN: FROM BROWSE PRODUCTS TO GLOBAL INFRARED COLOR MAPS under review  
*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 | <b>European Planetary Science Congress (EPSC)</b>         | Berlin, Germany |
| 2018 | <b>Committee on Space Research (COSPAR)</b>               | Pasadena, USA   |
| 2018 | <b>European Geosciences Union (EGU)</b>                   | Vienna, Austria |
| 2017 | <b>European Planetary Science Congress (EPSC)</b>         | Riga, Latvia    |
| 2017 | <b>European Geosciences Union (EGU)</b>                   | Vienna, Austria |
| 2017 | <b>48th Lunar and Planetary Science Conference (LPSC)</b> | Houston, USA    |
| 2016 | <b>Division for Planetary Science (DPS)</b>               | Pasadena, USA   |
| 2016 | <b>Titan Surface Meeting (TSW)</b>                        | Paris, France   |
| 2016 | <b>Titan Aeronomy and Climate workshop (TAC)</b>          | Reims, France   |
| 2015 | <b>European Planetary Science Congress (EPSC)</b>         | Nantes, France  |

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

## Training

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### Summer schools

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

### Field works

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

## Honors & Awards

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

## Outreach

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

## Leadership & Community Service

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

## Skills

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

## Activities

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

## Other

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