

# Benoît Seignovert

PHD STUDENT · ASTROPHYSICIST

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## 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 LAWAS

### École Normale Supérieure de 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

LGLTPE, Lyon, France

SUPERVISOR: PASCAL ALLEMAND

Jun. – Jul. 2012

- MRO CTX data processing
- Image mapping and stereoscopy reconstruction

### Telescopic Interferometry applied to planetary and stellar measurements

CRAL, Lyon, France

SUPERVISORS: ÉRIC THIÉBAULT & JACQUE VALADE

Apr. 2009 – Jun. 2011

- Telescopic survey of Jupiters' moons
- Interferometry modeling

## Training

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### Summer schools

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

### Field works

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

## Honors & Awards

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

## Leadership & Community Service

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<b>Fireball Recovery and InterPlanetary Observation Network (FRIPON)</b>	Reims, France
MEMBER & LOCAL TECHNICAL SUPPORT	2016-2017
<b>Astro-Café Parisien</b>	Paris, France
MEMBER	2016-2017
<b>Titan Aeronomy &amp; Climate workshop</b>	Reims, France
CO-ORGANIZER & WEBMASTER (PLANETO.UNIV-REIMS.FR/TAC)	2016
<b>ÉNS Lyon Astro club – têteENSI'air</b>	Lyon, France
PRESIDENT & WEBMASTER (BDE.ENS-LYON.FR/CLUBS/ASTRO)	2011-2014

## Skills

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

## 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 (photos.seignovert.fr)
<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 (27 years old)
<b>Languages</b>	French (native), English (fluent, CLES B2), Russian, German, Ancient Greek
<b>Driving</b>	French B/European licence

## 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 *under review*  
*West, R.A., Seignovert B., Rannou P., Dumont Ph., Turtle, P., Perry J., Roy M. & Ovanessian A.* *Nature Astronomy*
- 2 TRANSPARENCY OF 2  $\mu$ m WINDOW OF TITAN'S ATMOSPHERE *under review*  
*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:

- 1 THE 3.4  $\mu$ 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*

## Seminars & Conference Talks

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

## 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>      |