

Benoît Seignovert

POSTDOC SCHOLAR · 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 LAVAS

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 µM 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 MM ABSORPTION OF THE TITAN'S STRATOSPHERE: CONTRIBUTION OF ETHANE, PROPANE, BUTANE AND COMPLEX HYDROGENATED *under review*
Cours T., Cordier D., Seignovert B., Maltagliati L., Biennier L. *Icarus*
- 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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| 2019 | Titan Surface Meeting - Titan after Cassini Huygens | <i>Madrid, Spain</i> |
| 2019 | European Planetary Science Congress (EPSC) | <i>Geneva, Switzerland</i> |
| 2019 | 50th Lunar and Planetary Science Conference (LPSC) | <i>The Woodlands, USA</i> |
| 2019 | NASA Astrobiology Institute workshop (NAI) | <i>Pasadena, USA</i> |
| 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>
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

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

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

2018 – 2019	Postdoctoral Scholarship , Jet Propulsion Laboratory	<i>Pasadena, CA, USA</i>
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

2018	Titan comme vous ne l'avez jamais vu	<i>Ciel & Espace</i>
2018	Seeing Titan	<i>Astronomical Picture Of the Day</i>
2018	Seeing Titan with Infrared Eyes - PIA 21923	<i>NASA JPL Photo Journal</i>
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

PyVIMS toolbox	<i>PyPI / Github</i>
FOUNDER & MAIN DEVELOPER: pypi.org/project/pyvims	2018-2019
Cassini VIMS Data Portal	<i>Nantes, France</i>
DESIGNER & WEBMASTER: vims.univ-nantes.fr	2018-2019
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

Programming	Python, Fortran, 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, Golang
Database	SQLite, MySQL
Management	Git (CI/CD), Docker, Apache/Nginx, DNS/MX records
Photography	Lightroom, Photoshop, Inkscape, PTGui
Virtual Reality	Povray, Unity, Blender

Activities

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

Citizenship	French
Birth year	1990 (29 years old)
Languages	French (native), English (fluent, CLES B2), Russian, German, Ancient Greek
Driving	California Class C/French B/European licence