Meudon, Rio and Granada groups: international collaboration for observation of stellar occultations

Felipe Braga Ribas

Who we are?

Lucky Star

l'Observatoire de Paris — LESIA

Observatório Nacional

INSTITUTO de ASTROFISICA de ANDALUCIA
CSIC
I·A·A

Institut de Mécanique Céleste et de Calcul des Éphémérides

Observatório do Valongo

unesp
guaratinguetá

UTFPR
UNIVERSIDADE TECNOLÓGICA FEDERAL DO PARANÁ

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Bruno Sicardy

Roberto Vieira Martins

José Luiz Ortiz

Who we are?

l'Observatoire de Paris — LESIA

Bruno Sicardy

• Everything!

Damya Souami

• Image analysis, photometry.

Josselin Desmars

• NIMA: ephemeris, prediction, campaigns.

Gustavo (Guga) Benedetti Rossi

• Photometry, occultation reduction, astrometry.

Who we are?

l'Observatoire de Paris — LESIA

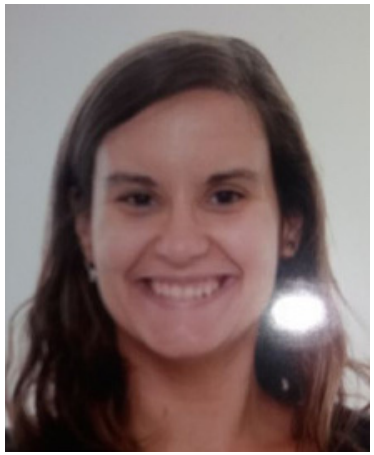
IMCCE Institut de Mécanique Céleste et de Calcul des Éphémérides

Jean Lecacheux

• Observer, photometry

François Colas

• Observer, photometry.



Joana Oliveira

• Theses on Triton Occultation

Frederic Vachier

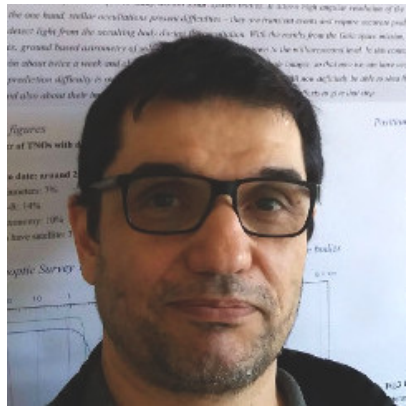
• Orbit of satellites of minor planets.

Who we are?

Observatório Nacional

Roberto Vieira Martins

- Group leader.



Julio Camargo

- Astrometry, photometry.

Rodrigo Boufleur

- Rotation light curve.

Bruno Morgado

- Thesis on Galilean satellites

Flavia L. Rommel

- Thesis on stellar occultation by TNOs

Who we are?

Observatório do Valongo

Marcelo Assafin

• PRAIA, astrometry, photometry.

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Altair Ramos Gomes Junior

• Astrometry and prediction of events by Irregular satellites

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Felipe Braga Ribas

• Photometry, occultation reduction, campaigns, results.

Who we are?

José Luis Ortiz

• Group leader.

Pablo Santos Sanz

• Photometry, occultation reduction, campaigns, results.

Rene Duffard

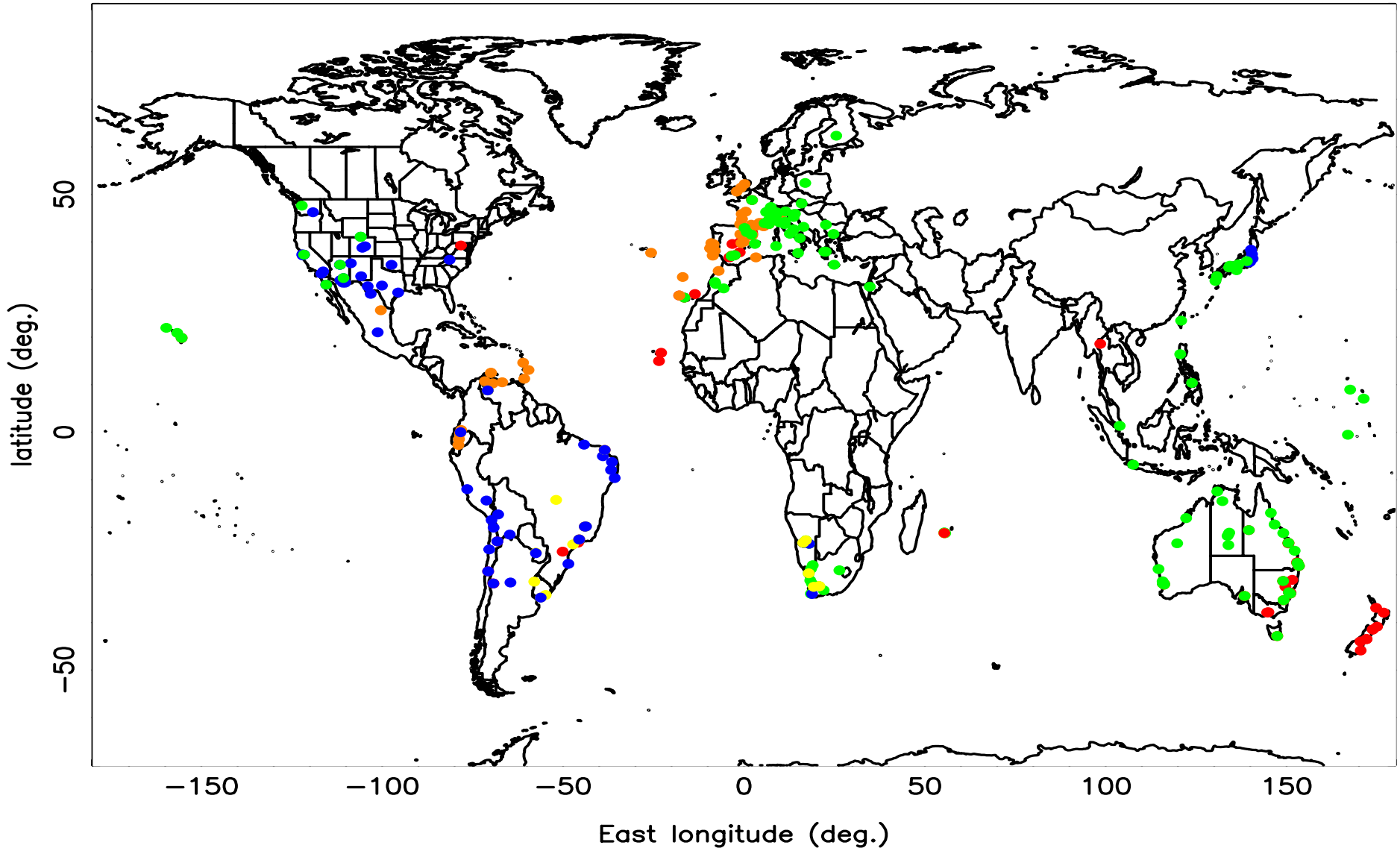
• photometry, rotation light curve.

Nicolas Morales

• Observation, photometry.


ESOP XXXVIII
Paris • France

Who we are?


latitude (deg.)
50
0
−50
−150
−100
−50
0
50
100
150
East longitude (deg.)

Who makes what?

Occult Watcher feeds:

Felipe
(Rio-TNOs)

Josselin
(Lucky-Star)

Altair
(Rio-Satellites)

Campaigns:

Felipe,
Pablo,
Josselin
(or any of the above)

Data storage:

Felipe
Pablo
Altair
Josselin
(or any of the above)

Data analysis:

any of the above too ☺

Results:

Felipe
Bruno Sicardy

http://lesia.obspm.fr/lucky-star/
http://occultations.ct.utfpr.edu.br/campaigns/
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What information do we need?

Before the event:

- Where are you going to observe with which telescope camera?

Right after the event:

- Was data acquired, was it overcast, who should be contacted?

After the event:

- Your images, video, as original as possible/practical (+ or -).
- How the time was referenced. There is a delay, is it the beginning, end, middle exposure?
- Geographical coordinates and altitude.
- Who were the responsible for the observation.

What information do we need?

Before the event:

- Where are you going to observe with which telescope camera?

Right after the event:

- Was data acquired, was it overcast, who should be contacted?

After the event:

- Your images, video, as original as possible/practical (+ or -).
- How the time was referenced. There is a delay, is it the beginning, end, middle exposure?
- Geographical coordinates and altitude.
- Who were the responsible for the observation.

What information do we need?

Before the event:

- Where are you going to observe with which telescope and camera?

Right after the event:

- Was data acquired, was it overcast, who should be contacted?

After the event (send the report):

- Your images, video, as original as possible/practical (+ or -).
- How the time was referenced. There is a delay, is it the beginning, end, middle exposure?
- Geographical coordinates and altitude.
- Who were the responsible for the observation.

Property and Publication Policies

- The data belongs to you (of course) => as there is a lot of manpower and public money invested to provide the predictions, we ask for you to collaborate with us (too);
- You can send your results (times) to IOTA groups;
- Co-author => the responsible observers will be co-authors of the publication that first provides the results of that event.
- A scientific result demands times => we will analyse all the data with many tools and with a great care obtain the best information they can provide. The results will be analysed together with other data for a common and reliable result. This takes time, and we have to prioritize these events that will led to higher scientific outcomes.

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Publications:

1. Santos-Sanz, **2002 GZ_{32}**, *Submitted* (2019);
2. Benedetti-Rossi, *AJ*, **2003 VS_2**, *AJ,* (2019)
3. Desmars, **Pluto ephem.** *A&A,* (2019)
4. Meza, **Pluto atm. (18 year of obs.)** *A&A,* (2019)
5. Bérard, **Chariklo rings,** *AJ,* (2017)
6. Dias-Oliveira, **2003 AZ_{84}**, *AJ,* (2017)
7. Leiva, **Chariklo shape,** *AJ,* (2017)
8. Ortiz, **Haumea ring**, *Nature,* (2017)
9. Benedetti-Rossi, **2007 UK_{126}**, *AJ*, (2016)
10. Sicardy, **Pluto's atmosphere on june 29 2015**, *ApJL,* (2016)
11. Braga-Ribas *et al,* **Chariklo rings discovery**, *Nature,* (2014)
12. Braga-Ribas, **Quaoar**, *ApJ*, (2013)
13. Ortiz, **Makemake,** *Nature,* (2012)
14. Sicardy, **Eris,** *Nature,* (2011)

Future plans

New ERC submitted proposal:

Future plans (Rio group)

LIneA Solar System portal:

- Compute new ephemeris using LSST and + positions;
- Generate predictions maps;
- Manage observation campaigns;
- Store the data and observer information;
- Give the light curve, time and chord;
- Give elliptical fit and astrometric position.

Campaigns: (http://occultations.ct.utfpr.edu.br/campaigns/)

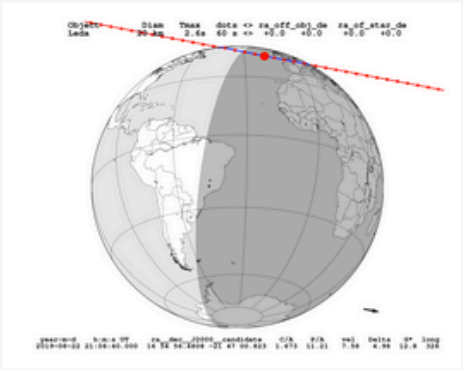
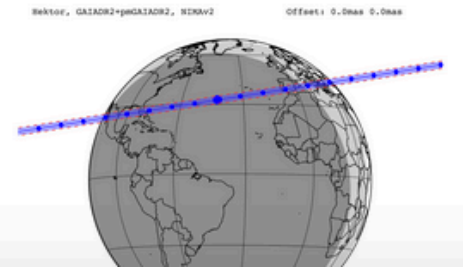
SOSB UTFPR Lucky Star

Home Results Campaigns Contact

Current Month | All Events

Show 50 rows | Copy | Excel | Print | View more Columns

Search:

Date	Object	G mag	Map	Other information
2019-08-22	Leda	13.8		More info !
2019-08-28	Hektor	9.8		Irregular object, the shadow may be wider than the one on the map. More info !

Results: (http://occultations.ct.utfpr.edu.br/results/)

SOSB UTFPR Lucky Star

Home Results Campaigns Contact

Results

Home / Results

Note! Glossary Plots

Reported events (updated 23/August/2019)
All Events 166 / TNOs 60 / Centaurs 29 / Dwarf Planets 37 / Trojans 25 / Satellites 30 / Features 34

Different Objects
Total of Different Objects 63 / TNOs 30 / Centaurs 6 / Dwarf Planets 5 / Trojans 16 / Satellites 13

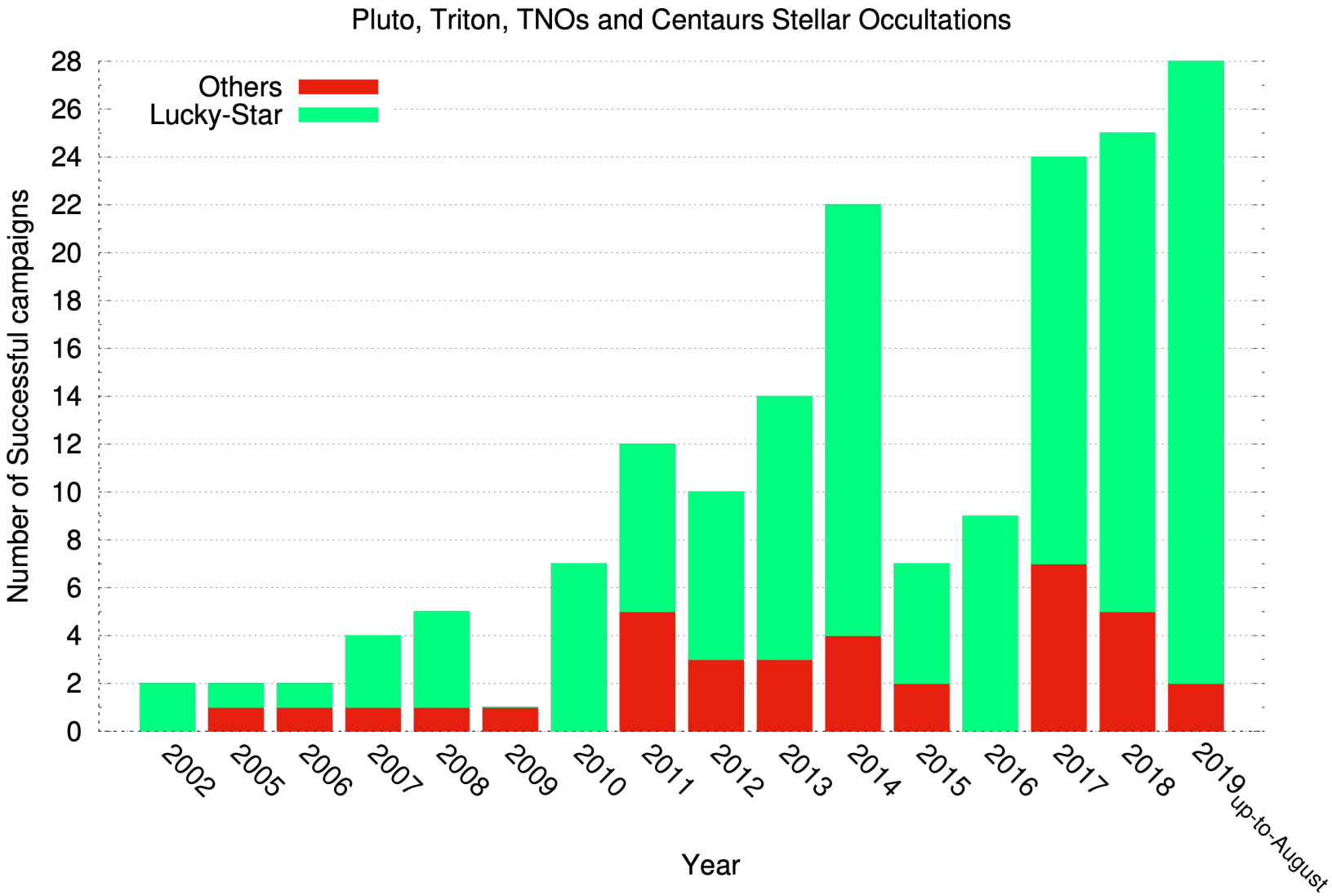
All Events | TNOs | Centaurs | Dwarf-Planets | Trojans | Satellites | Pluto | Features

Filters: Date Filter | Chord Filter | Equatorial Radius Filter | Equivalent Radius Filter | Albedo Filter | Density Filter

Show 50 rows | Copy | Excel | Print | View more Columns | Search:

Line Number	Name	Date	Chrods	Radius (equatorial) (km)	error Radius (equatorial)	Equivalent Radius (km)	Sh
1	Diomedes	2019-08-20	2	-	-	-	Und
2	2002 MS4	2019-08-19	1	-	-	-	Und

Results: (http://occultations.ct.utfpr.edu.br/results/)



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