



SPHERE

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Data Center

Nadège Meunier, Damien Albert, Eric
Lagadec et Philippe Delorme

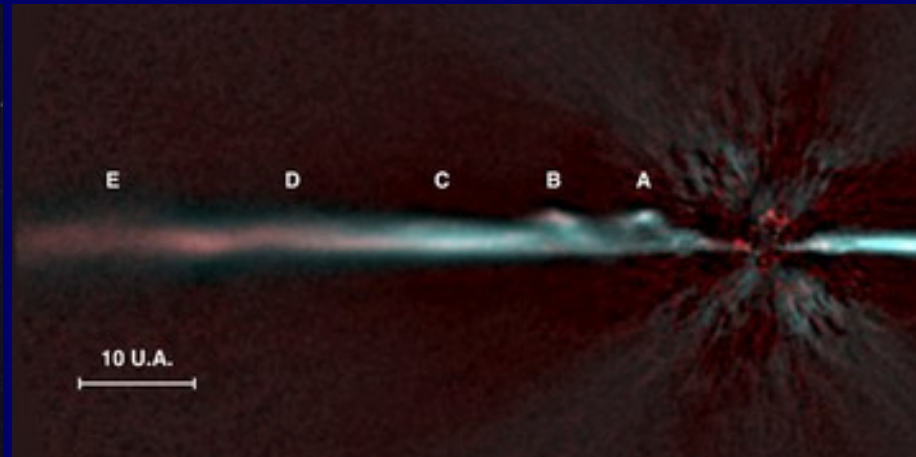
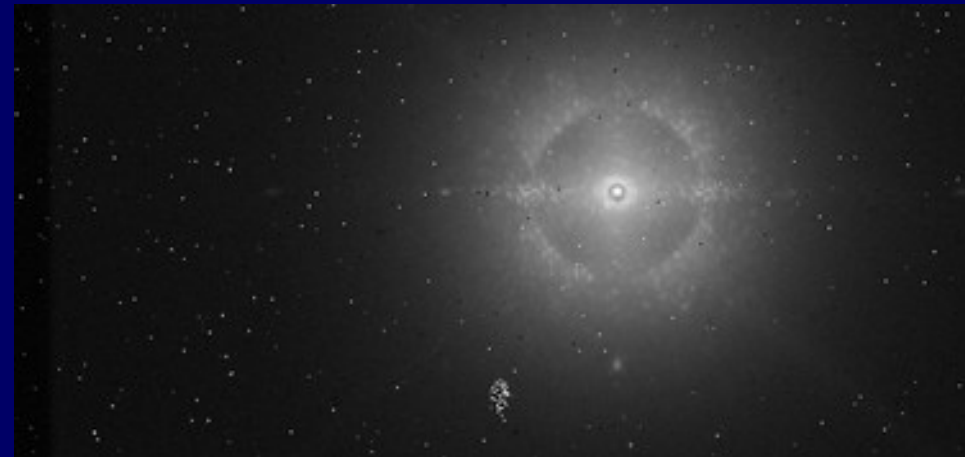
Sphere feedback meeting - November 2015

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Principle of data reduction

☀ Having a powerful instrument like sphere is not enough !

• Left : raw image , Right : reduced



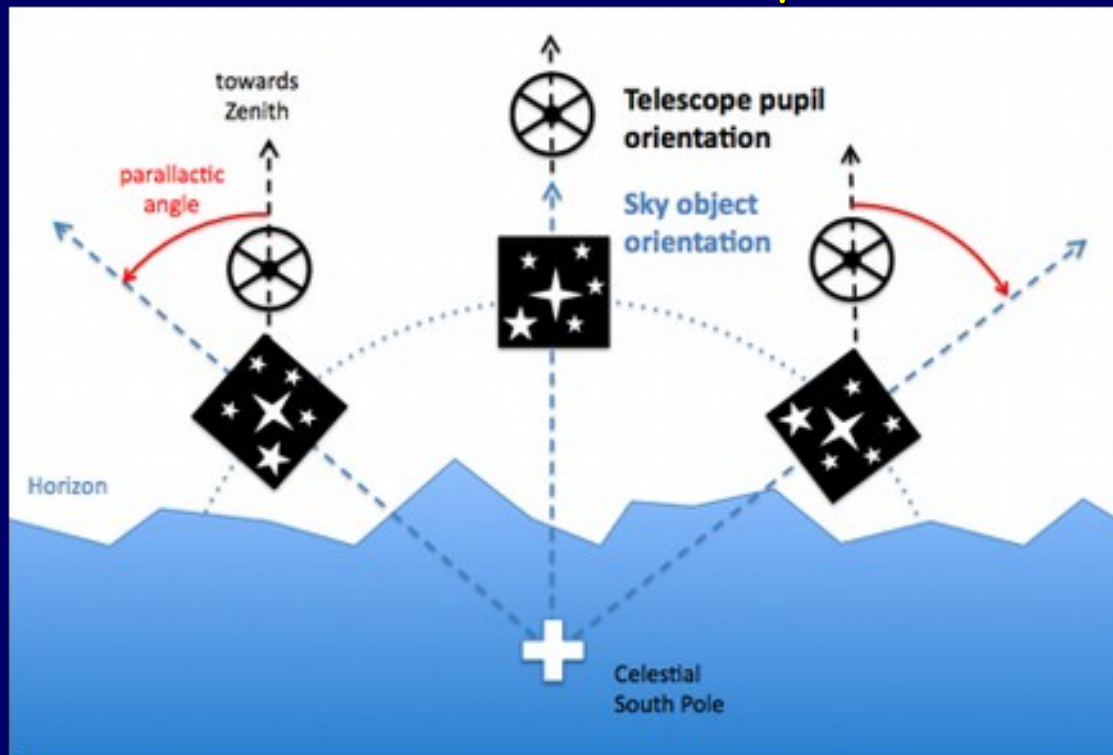
Bad pixels, ghosts, halo, speckles, spiders...

Complex cosmetics and careful reduction needed !

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About parallactic rotation

☀ A key ally in the search for disks and exoplanets !



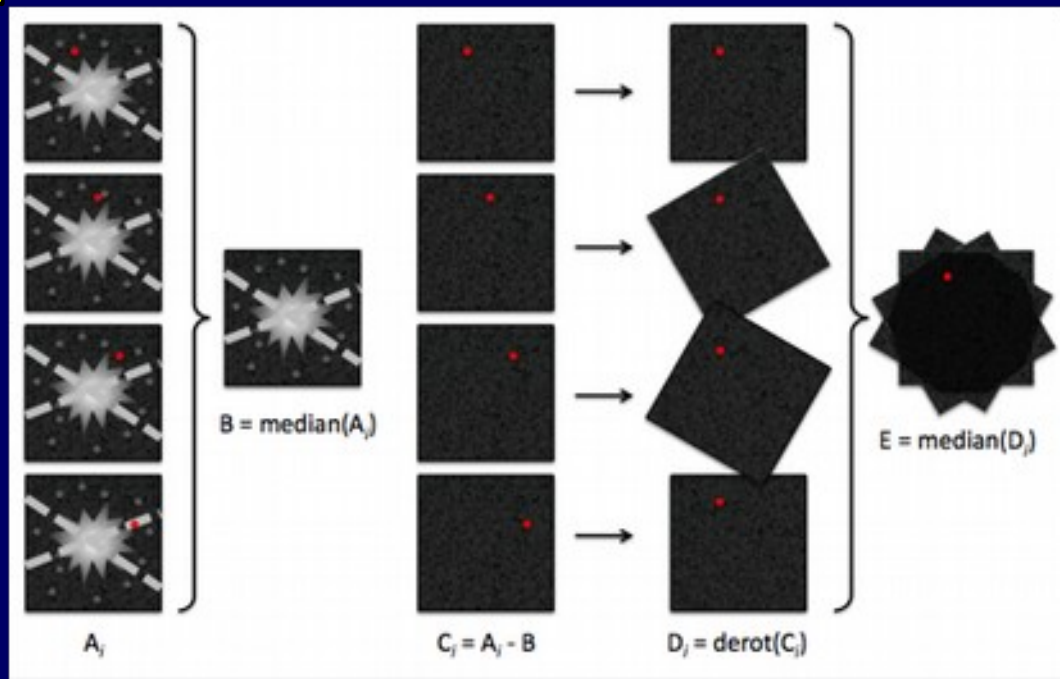
We observe in pupil tracking, with pupil fixed (~PSF/optical defects fixed)

Astrophysical objects -planets, binary, disk- rotate during the observations

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About ADI

☀ Using parallactic rotation to erase the star without erasing planets.



First we construct the image of the star and subtract it to each image

Finally we stack the images after correcting for rotation



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Aims of SPHERE-DC

☀ Provide robust reduction for SPHERE data

- Extensive knowledge of SPHERE reduction allow to avoid most issues and problem
- Specific patches developed to correct problems not solved by public software
- Ensure homogeneous analysis and a common starting point for the various data analysis techniques (such as ADI, LOCI or PCA)

☀ Store and provide access to raw and reduced SPHERE data

- Download raw data from Garching
- Provide raw and reduced data to registered users with passwords.
- Keep memory of reductions (routines, versions, parameters, date, products)



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How the DC works ?

★ Download, import and sorting of raw data

- Download raw data from Garching
- Automatic import and sorting of bunch of files into the database

★ DC database approach to data

- Any keyword stored in database can be used to sort, filter and search data (date, object, ra, dec, filter, exptime...)
- Tracking of all processes applied to any data

★ Automated reduction of IRDIS or IFS datasets

- Replaces 5/11 (IRDIS/IFS) manual reduction steps by 1 automatic.

★ Graphically assisted DRH and IDL manual routine launching

- Sometimes automated reductions needs to be completed by manual tuning
- Automated file combination through « optimized » mode: no « sof » file building



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In Practice !

Installation by clicking on :

<http://wsrdata.obs.ujf-grenoble.fr:8080/sphere-server/sphere-client/sphere-client.jnlp>



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Current DC issues

- **Hard drive capacity**

Currently 16To, 10 more available, but not infinite resource

- **RAM usage by multiple users during DRT runs.**

Mostly solved !

- **Datacentrization of advanced routines**

Which ones ?

Routines need to be stabilized before datacentrisation



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You and the DC: reduce data

☀ Use DC for your PI data

A special « sandbox » mode is at the disposition of any PI who want to reduce his data using DC tools. Send a mail to sphere-dc-team@ujf-grenoble.fr.

- All public DC tools available
- Reduce and retrieve your data quickly (sandbox data are erased after a month)