

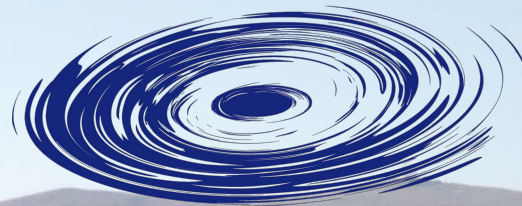
Self-cal / JMMC

17 Novembre 2015

Florentin Millour

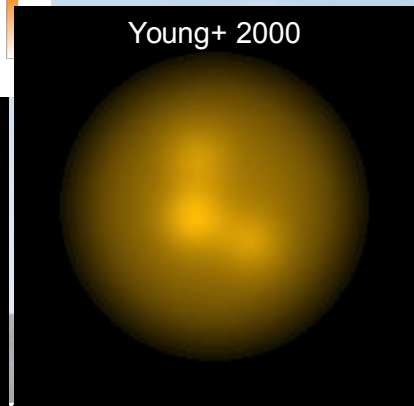
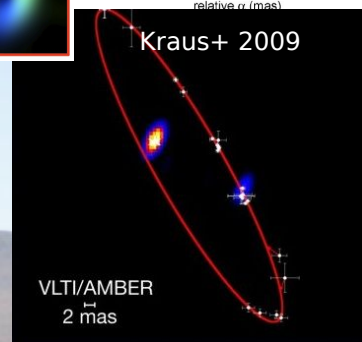
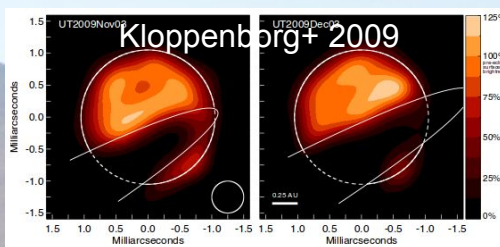
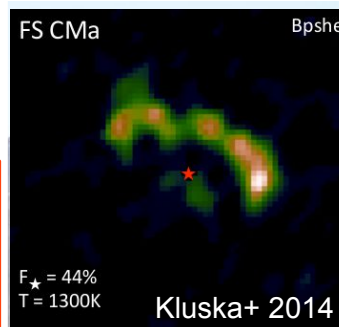
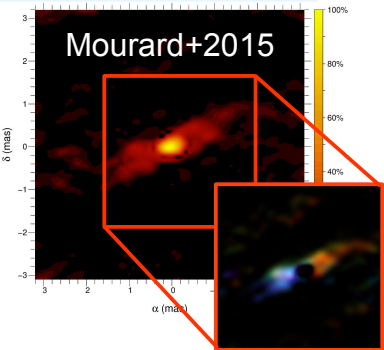
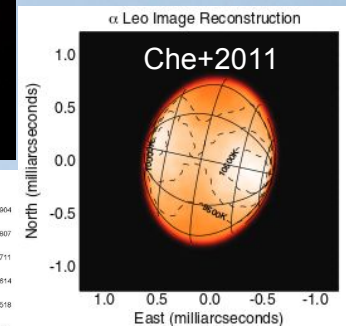
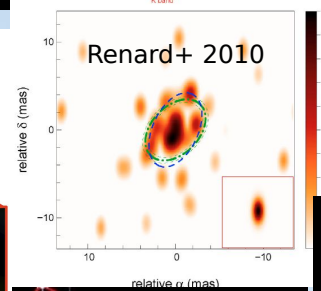
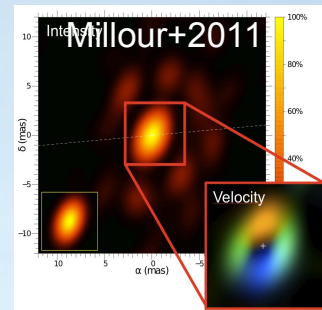
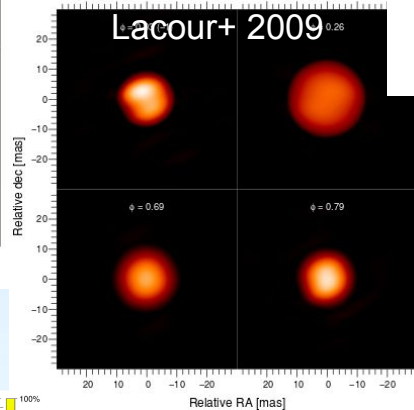
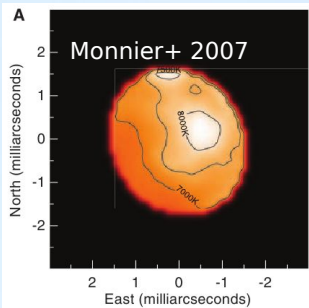
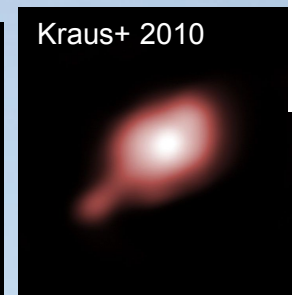
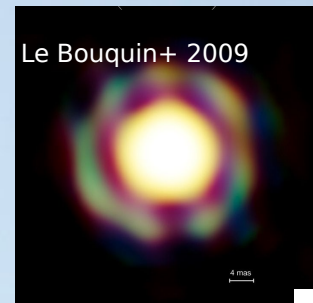
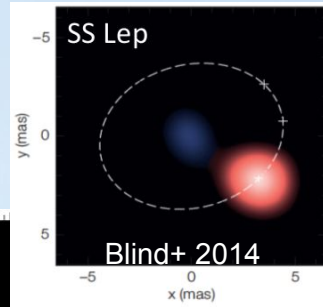
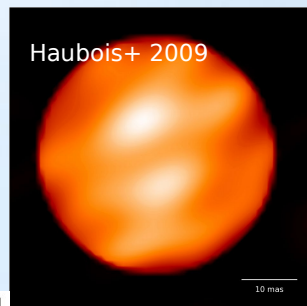
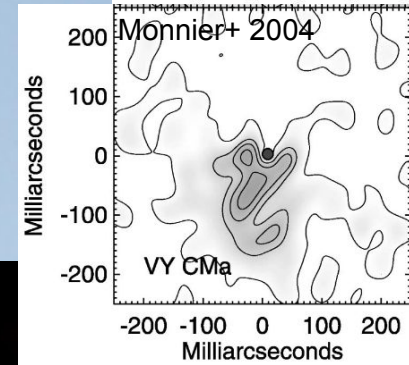
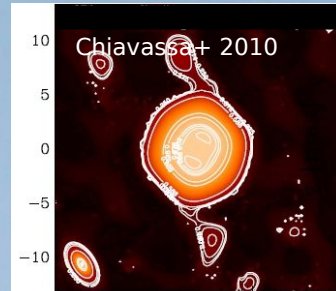
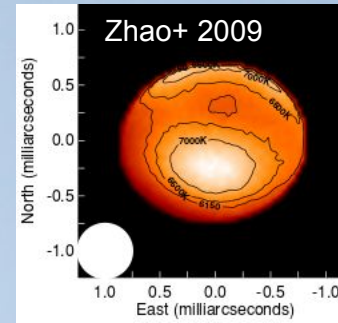
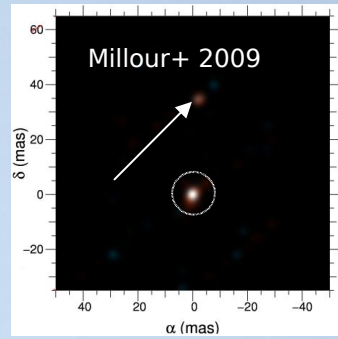
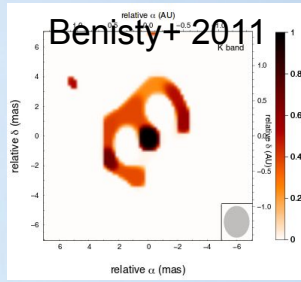
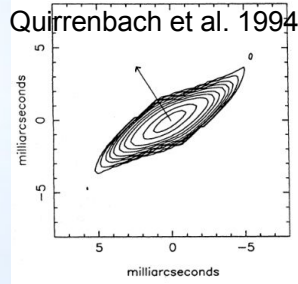
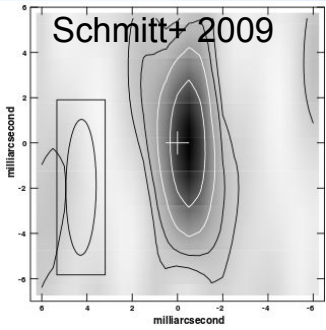


Observatoire
de la CÔTE d'AZUR



LAGRANGE

Images en 2015

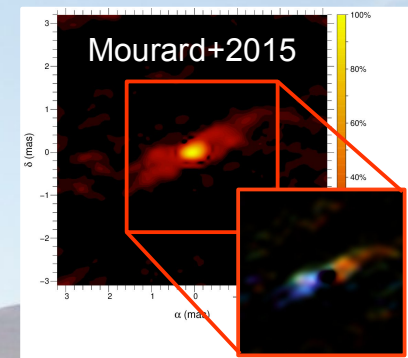
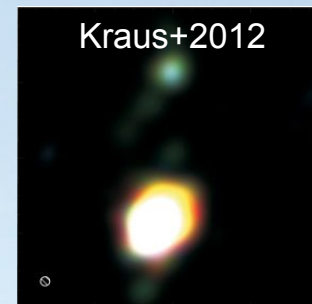
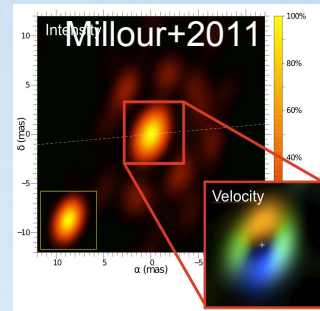
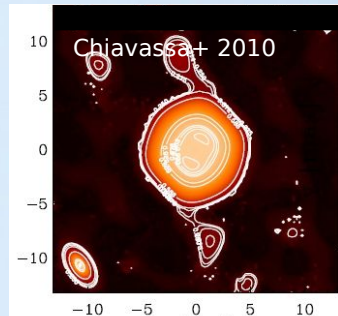


$F_* = 44\%$
 $T = 1300K$

Kluska+ 2014

VLTI/AMBER
2 mas

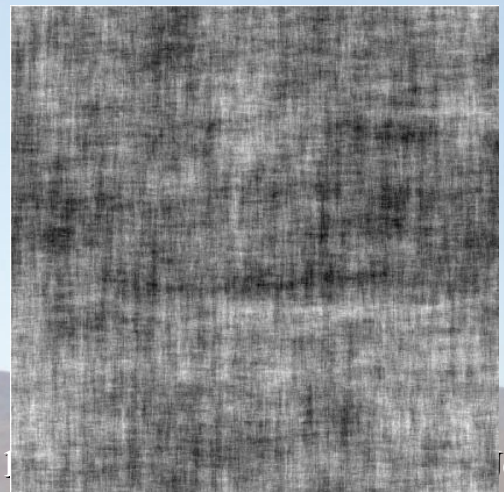
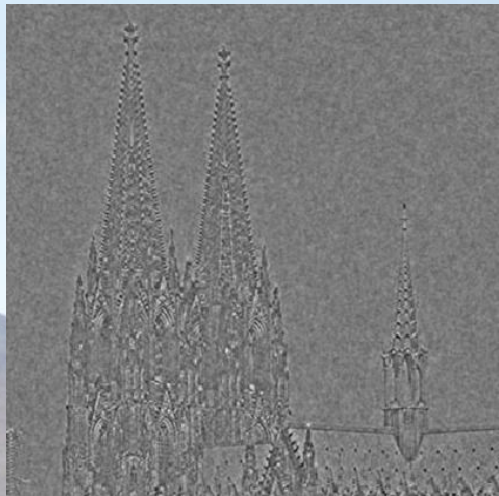
Images « en couleurs »



Les phases, c'est important

- Mais pas mesurables facilement
- $(N_{\text{tel}} - 1)(N_{\text{tel}} - 2)/2$ Clôtures de phases
- $N_{\text{tel}}(N_{\text{tel}} - 1)/2$ Phases différentielles

Phases différentielles pas utilisées dans les logiciels utilisés aujourd'hui
(MIRA, WISARD, BSMEM, MACIM)



Les défauts de calibration sont importants

- Self-calibration

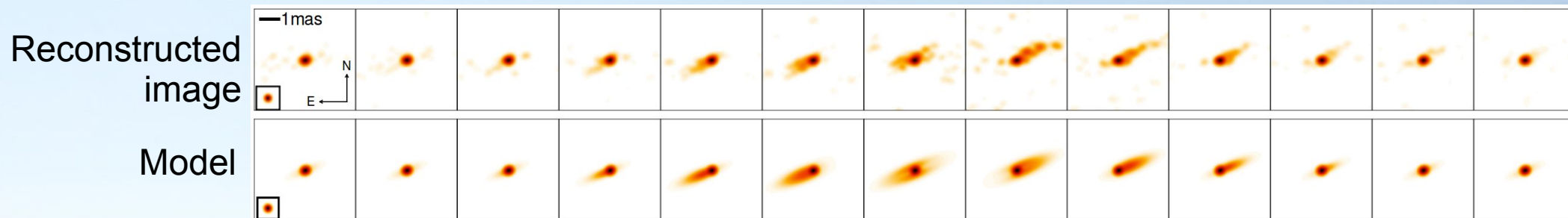
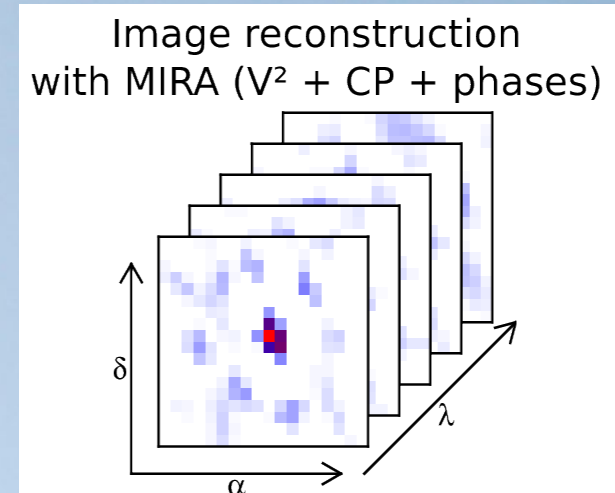
<http://self-cal.oca.eu>

- Differential phases

- Millour et al. 2010, Ohnaka et al. 2010

- Diff. phases + amplitudes (visibilities)

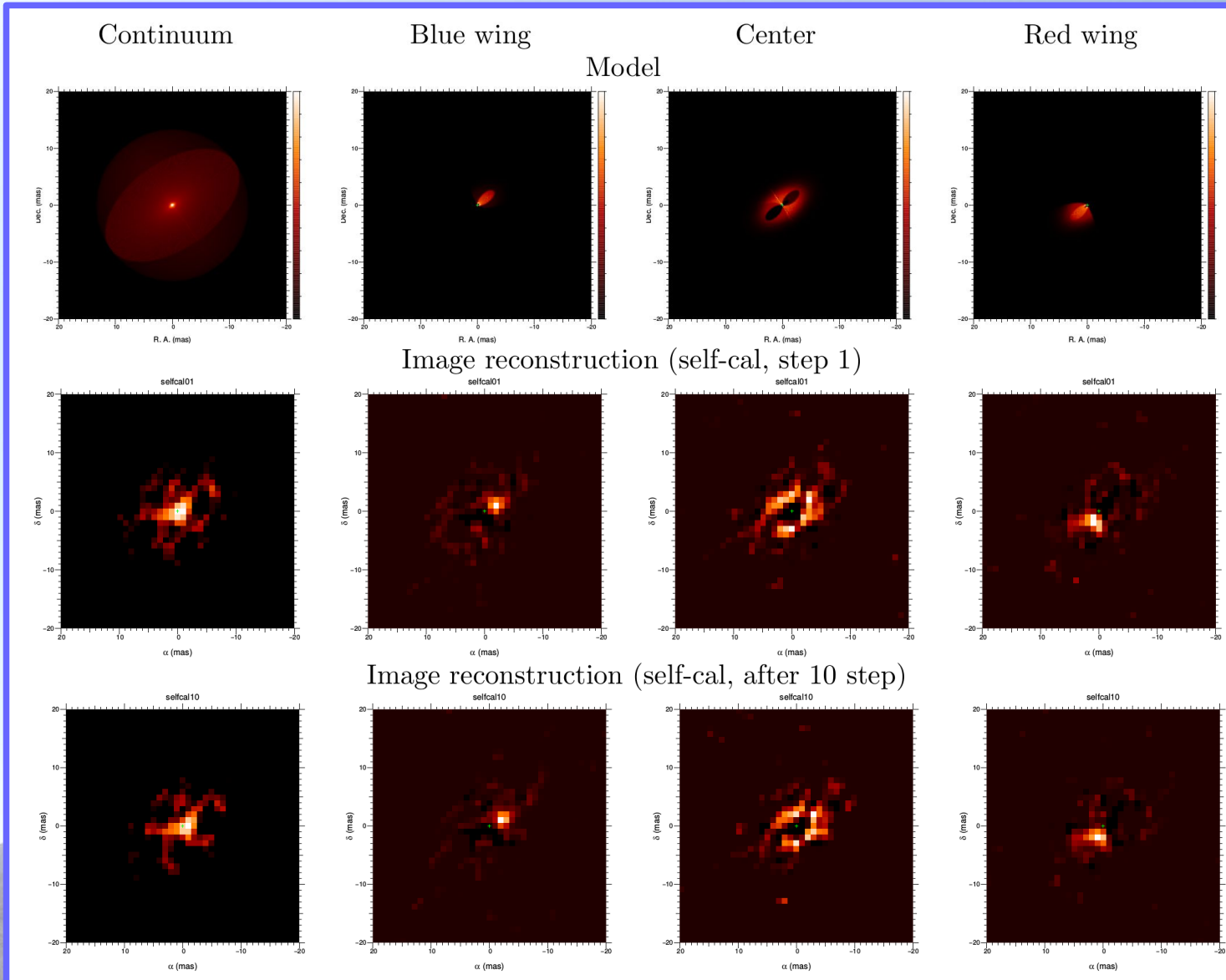
- Mourard et al. 2015



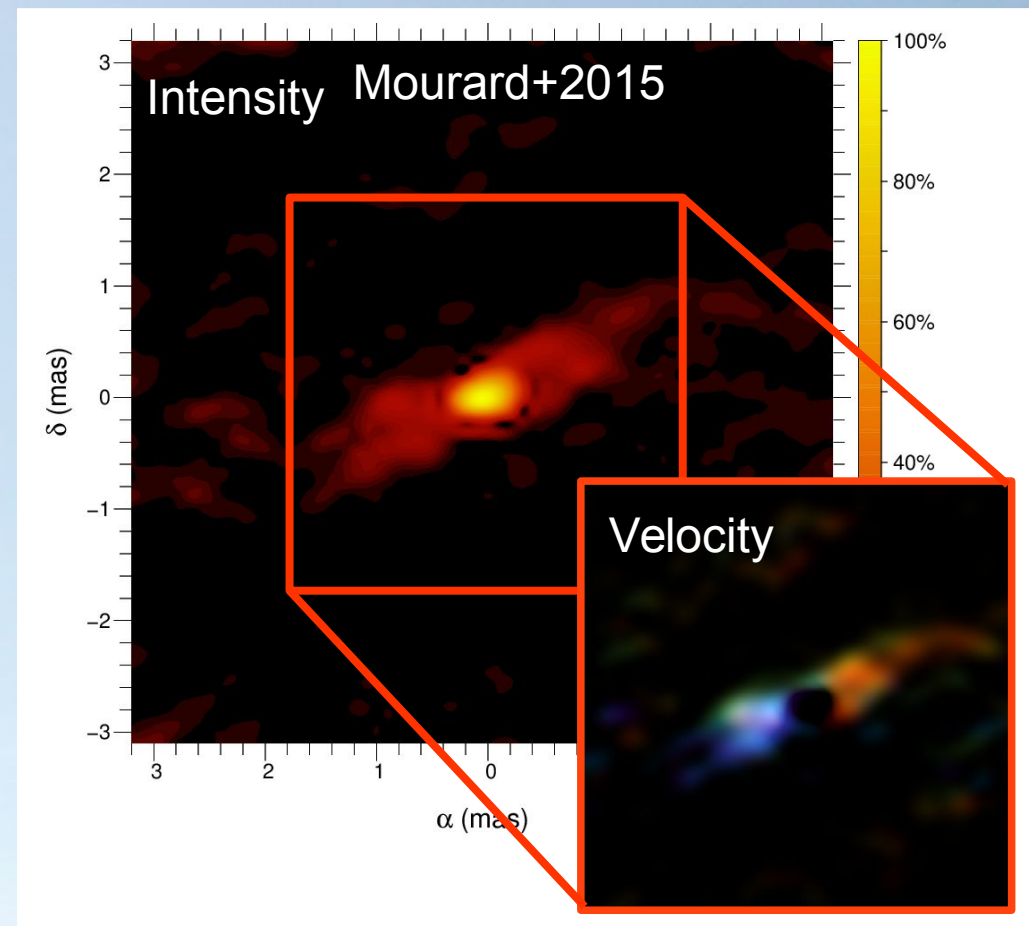
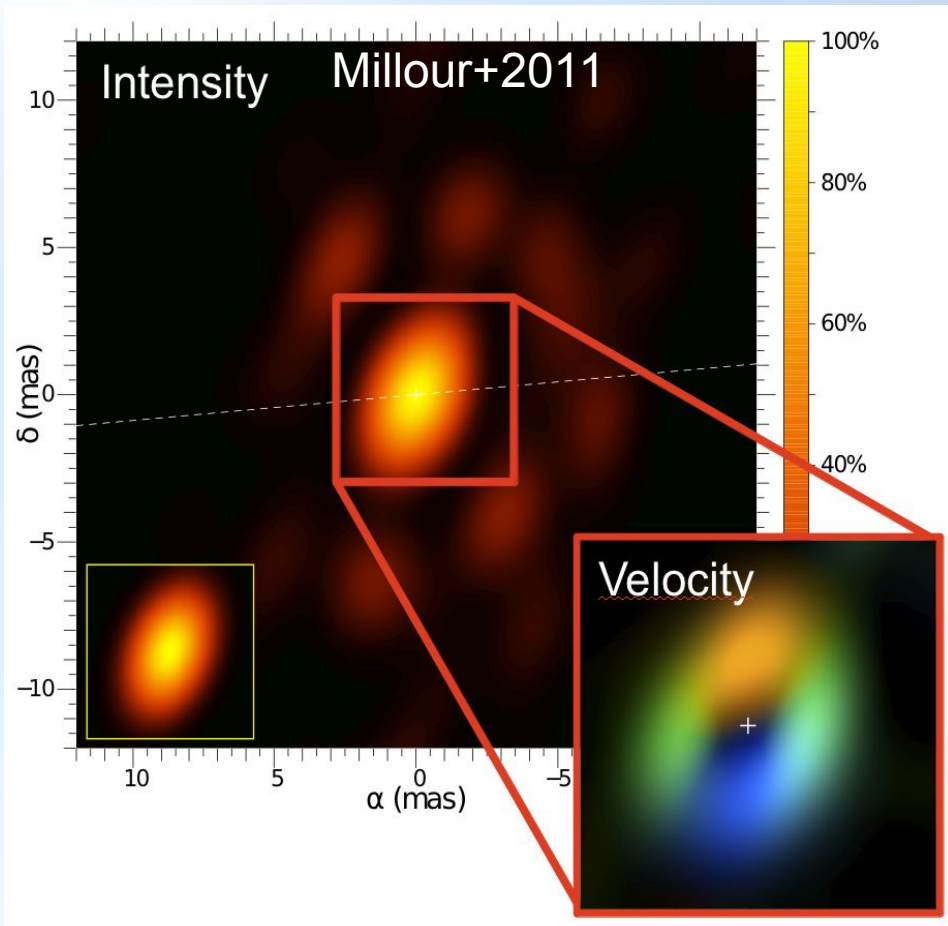
- Can be applied to software accepting complex visibilities, i.e. MIRA, WISARD, ... ?

Tests sur des données simulées

Millour et al. 2012



Exemples d' application



Proposition de transférer self-cal au JMMC : Février 2015

Le logiciel est distribué via la page de l'OCA en attendant

Demande de faire partie du groupe de reconstruction d'image

Interfaçage self-cal / WISARD : première étape : « chromatiser » WISARD

Fichiers d'échange entre logiciels (images, oifits)

- Proposition de facto dans self-cal/miral.i
- Propostition par MH & KHH dans IRBIS

self-cal - fitOmatic - Mozilla Firefox

self-cal - fitOmatic

self-cal.oca.eu

Rechercher

SELF-CAL

Login | Preferences | Help/Guide | About Trac

Wiki

wiki: self-cal

Start Page | Index | History

Self-Calibration for optical interferometry image reconstruction

This page is the distribution page of the self-calibration algorithm developed by [F. Millour](#). Please cite Millour et al. (2011) [[bibtex](#) | [ads](#)] if you use this software or the associated algorithm.

What is self-cal?

Self-calibration is a method first developed in radio-astronomy to produce radio-interferometric images of an astrophysical object. The review [Pearson & Readhead 1984](#) explains well the principles and applications of this technique. Different variants have been developed for optical interferometry:

- The [WISARD software](#) uses an internal self-calibration algorithm to produce gray images of an object
- The paper [Schmit 2008](#) describes a coherent integration method to produce images with radio-interferometry software
- The paper [Millour et al. 2011](#) describes the use of differential phases in the image reconstruction process. **It is the subject of this software.**

When should I consider using self-cal?

When you have an optical interferometric dataset suitable for imaging, which contains wavelength-differential phases. An example of suitable dataset can be found [here](#). More generally, the instruments producing such datasets are [AMBER](#) when used with medium or high spectral resolution, or [VEGA](#). It will be also the case of [MATISSE](#) and [GRAVITY](#)

Download

Self-cal can be downloaded [here](#)

Pre-requisites

To use it, you should have:

- a running version of the [amdlib software](#), distributed by the [JMMC](#),
- a running version of the free software [MIRA](#), developed by [E. Thiébaud](#),
- The yutils package from F. Rigaut.

Installation instructions

First, install the amdlib software. Go to http://www.jmmc.fr/data_processing_amber.htm, create an account if you do not have one, and follow the installation manual (it is mainly a matter of running an `install.sh` script).

Then, install the MIRA software. I distribute a shell installation script of MIRA [here](#). You also have it for convenience in the self-cal archive:


```
miral.i (~/.CVS/fitOmatic/fitOmatic/trunk/yorick) - gedit
Ouvrir Enregistrer Annuler
miral.i x
/*****/
func miral_self_calibrate(inputFiles, inputImage, outputDir, overwrite=,
wlenIdx=, calibrateAmp=, useVisAmp=, pse=, kill=, gain=, plot=)
  /* DOCUMENT miral_self_calibrate(inputFiles, inputImage, outputDir,
  overwrite=, wlenIdx=, calibrateAmp=, useVisAmp=, pse=, kill=, gain=)

  DESCRIPTION
  Self-calibration step for MIRA-L

  PARAMETERS
  - inputFiles : input ofits files
  - inputImage : input image cube (the hybrid map)
  - outputDir : output data directory (the synthetic data)
  - overwrite : overwrite or not already-existing files
  - wlenIdx : mask to use only selected wavelengths for self-
calibration of the differential phase
  - calibrateAmp: whether or not calibrate the amplitude also
  - useVisAmp : Use V2 or visamp to get the visibility amplitude
  - pse : Pause between plots
  - kill :
  - gain :

  SEE ALSO
  */
{
  if(is_void(pse))
    pse = 0;

  if(is_void(gain))
    gain = 1.0;

  if(is_void(kill))
    kill=1;

  if(is_void(plot))
    plot=1;

  if(plot)
    if(kill==1)
    {
      winkill,11;
      winkill,12;
      winkill,13;
      window,13,width=3,height=3,wait=1;
      yocoNmCreate,12,3,1,landscape=1,width=800,height=600,
wait=1,dx=0.1, V = [0.1,0.9,0.12,0.70],fx=1;
      if(calibrateAmp)
        yocoNmCreate,11,2,2,landscape=1,width=800,height=600,
wait=1,dx=0.1, V = [0.1,0.9,0.12,0.70],fy=1,dy=0.1;
      else

```

Quel logiciels scientifiques intéressent les internautes ?

python

Terme de recher...

MATLAB

Computer progr...

IDL

Programming La...

Julia

High-level progra...

yorick

Terme de recher...

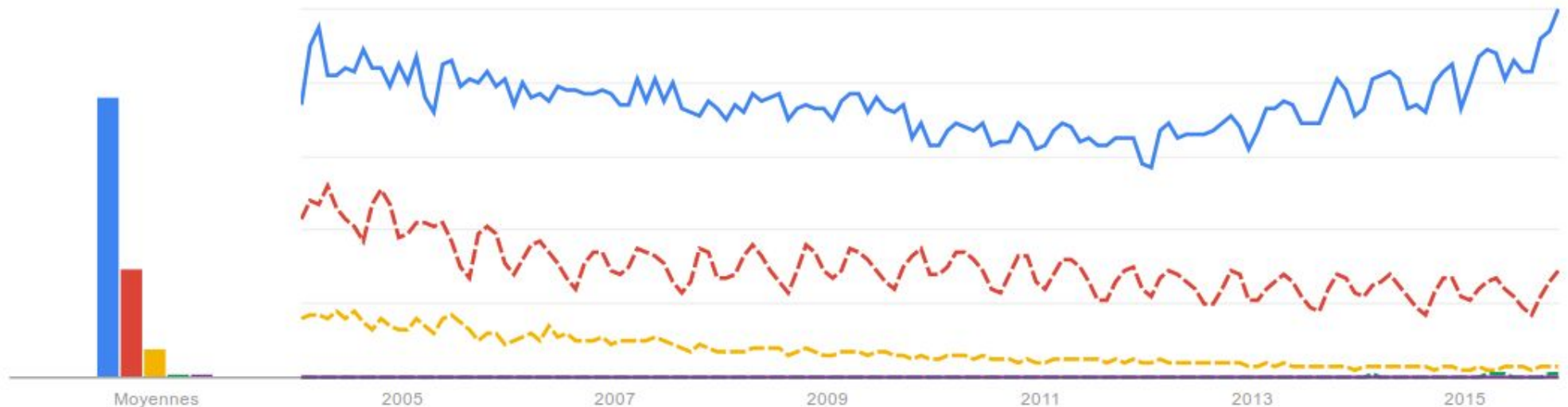
Bêta : l'analyse statistique des *sujets* de recherche qui intéressent le plus les internautes est une fonctionnalité bêta qui permet d'analyser rapidement et avec précision les centres d'intérêt des utilisateurs dans la recherche sur Internet en général. Pour connaître le volume de recherche pour une *requête* en particulier, sélectionnez l'option "Terme de recherche". ?

Évolution de l'intérêt pour cette recherche ?

Comparer à la catégorie ?

Titres des actualités ?

Prévisions ?



Source : googletrends