# Installation of CAOS-lite — 1
## (CAOS PSE + lite version of Soft.Pack.CAOS)

```
├-----------------------------------------
INSTALLATION PROCESS (& BRIEF INTRODUCTION):
-----------------------------------------
(CAOS-lite, version 2026)

01-Unpack CAOS-install.zip somewhere on your account, the directory
   "CAOS-install/" is created, and it contains both a lite version of CAOS
   (within directory "CAOS-lite/") and the IDL Astronomy Library (within
   directory "astrolib/"). The lite version of CAOS contains itself both
   the CAOS PSE (Problem-Solving Environment - the IDL-based CAOS global
   architecture and interface) and a special lite edition of the CAOS
   Software Package (based on CAOS Software Package version 7.0), as well
   as a working directory, "work_caos/".

02-Go to the working directory "work_caos/" and fix the paths in the
   environment-parameters files "caos_env.sh" and "caos_startup.pro".

03-Still within the working directory, type "source caos_env.sh".

04-Launch IDL.

05-Type "@compile_all_CAOSlite_modules" in order to re-generate the
   default parameter files of the whole set of modules (upgrading so
   any possible pre-defined path).

06-Type "worksheet" at the CAOS prompt in order to use the CAOS
   Application Builder (the global interface of the tool).

NB-1: Steps 01,02,05 are necessary just once, during installation.
NB-2: Steps 03,04,06 are necessary for each opened terminal from which
      you wish to use IDL together with CAOS.
```

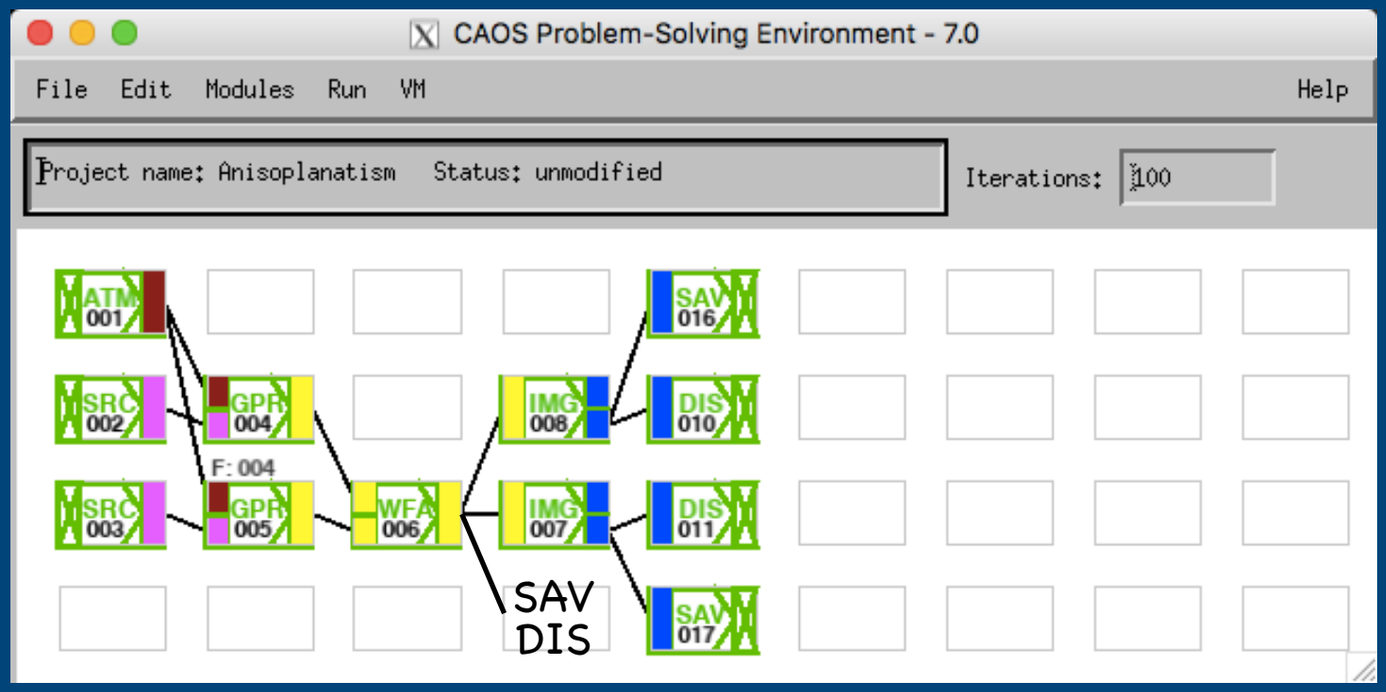
# Installation of CAOS-lite — 2
## (CAOS PSE + lite version of Soft.Pack.CAOS)

```
----------------------
SOME ADDITIONAL REMARKS:
----------------------

01-Refer to
      http://lagrange.oca.eu/caos
   for further informations on the CAOS PSE and its official packages.

02-Please never redistribute any CAOS part by yourself, rather refer to
   http://lagrange.oca.eu/caos.

03-New projects start within the worksheet with "File"->"New Project". Modules
   are put within the worksheet through button "Modules", and can be cloned
   or deleted using "Edit"->"Clone module" or "Edit"->"Delete item". Each color
   at the left- or right-side of a module represents a type of input or output.
   In order to link two modules, click on the output of the first one and then
   click on the input of the second one. When the design of your simulation is
   completed, including setting of the total number of iterations, save the
   project using "File"->"Save Project". Then you can set the parameters related
   to each module using its dedicated GUI called by clicking on the module at
   any moment.

04-For a detailed tutorial refer to:
      http://lagrange.oca.eu/caos/tutorial/tutorial.html

05-In order to run a project, for example a project named "Anisoplanatism":
   > .rn ./Projects/Anisoplanatism/project.pro
   or alternatively use button "Run" from the CAOS PSE worksheet.


-------------------------------------
Completed March 2026 - Marcel Carbillet
```

# Build project for anisoplanatism…

0- COMPLETELY FINALISE INSTALLATION OF "CAOS LITE" BEFORE GOING ON !!

Then, within the CAOS interface…




1- Reproduce the project "Anisoplanatism" here beside.

2- Click on the ATM module, its graphical user interface (GUI) opens, then change its parameters into your own ones ($r_0$, $L_0$, altitude of the layers, mainly), and finally save them with button "Save".

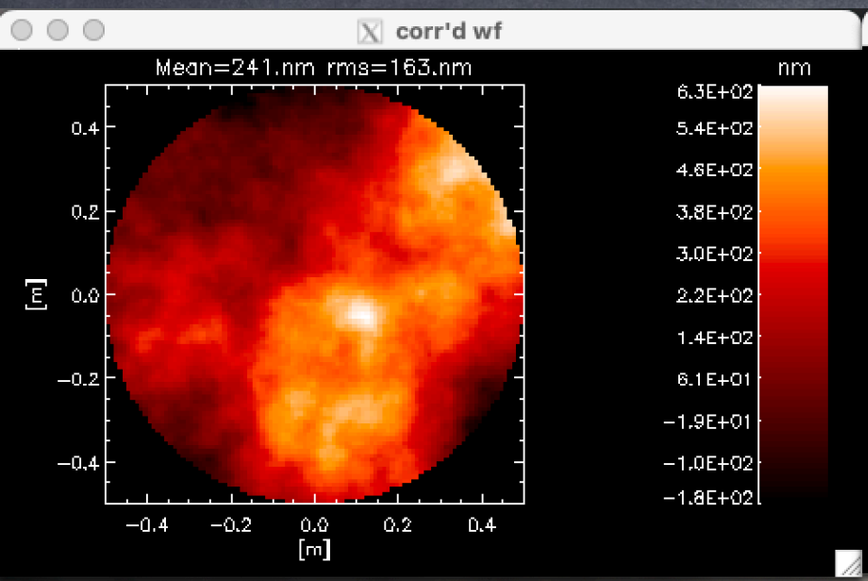
3- Fix the parameters of the other modules. (Module's GUI a bit too wide => don't see the button Save ? => "Auto-hide Dock"on your PC settings !)

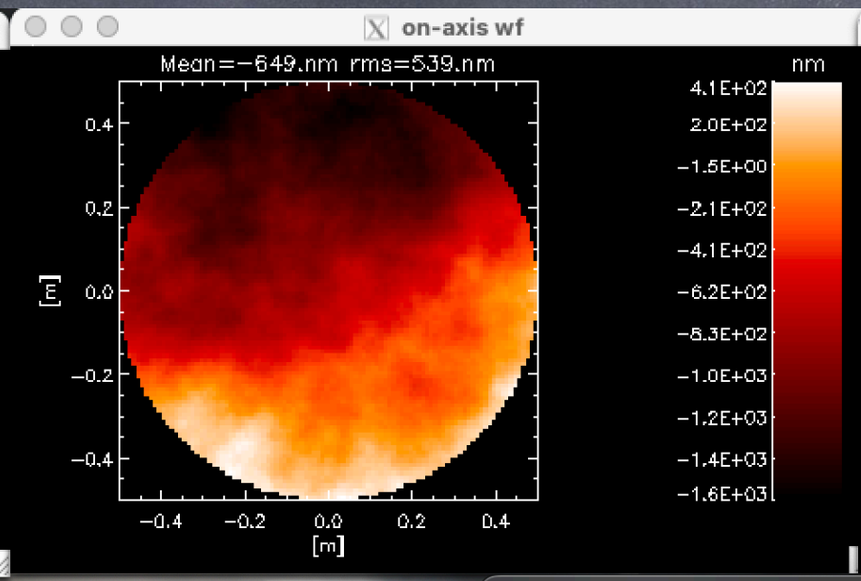
4- Choose a value for the off-axis angle (typically in between 0" and 60") within second occurence of module SRC and, as a consequence, adapt the name of the saved PSFs and wfs within the 3 modules SAV (one for each module IMG, i.e. one for each considered wavelength: for example 500nm and 1650nm).

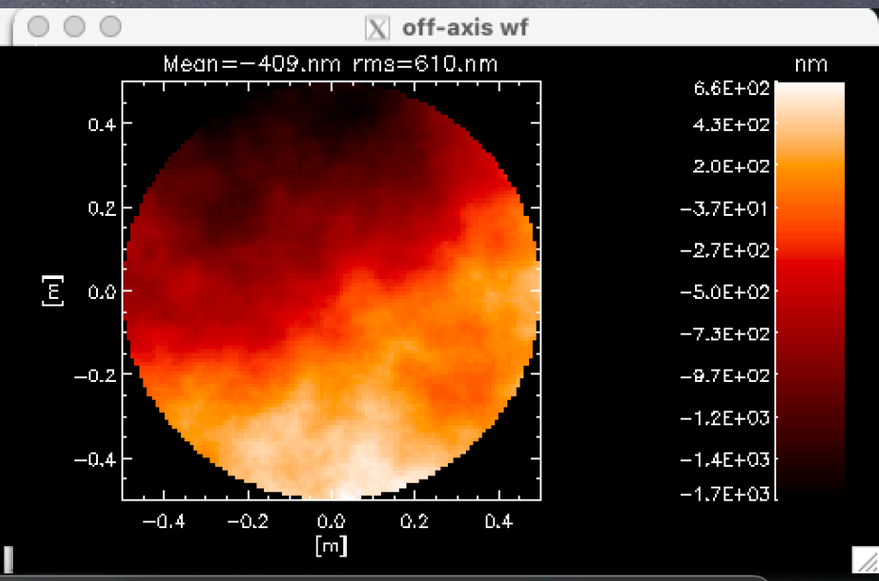
5- Run the simulation project by using button "Run" within the CAOS interface (or with the IDL-CAOS command ".rn ./Projects/Anisoplanatism/project.pro" for a project called "Anisoplanatism").

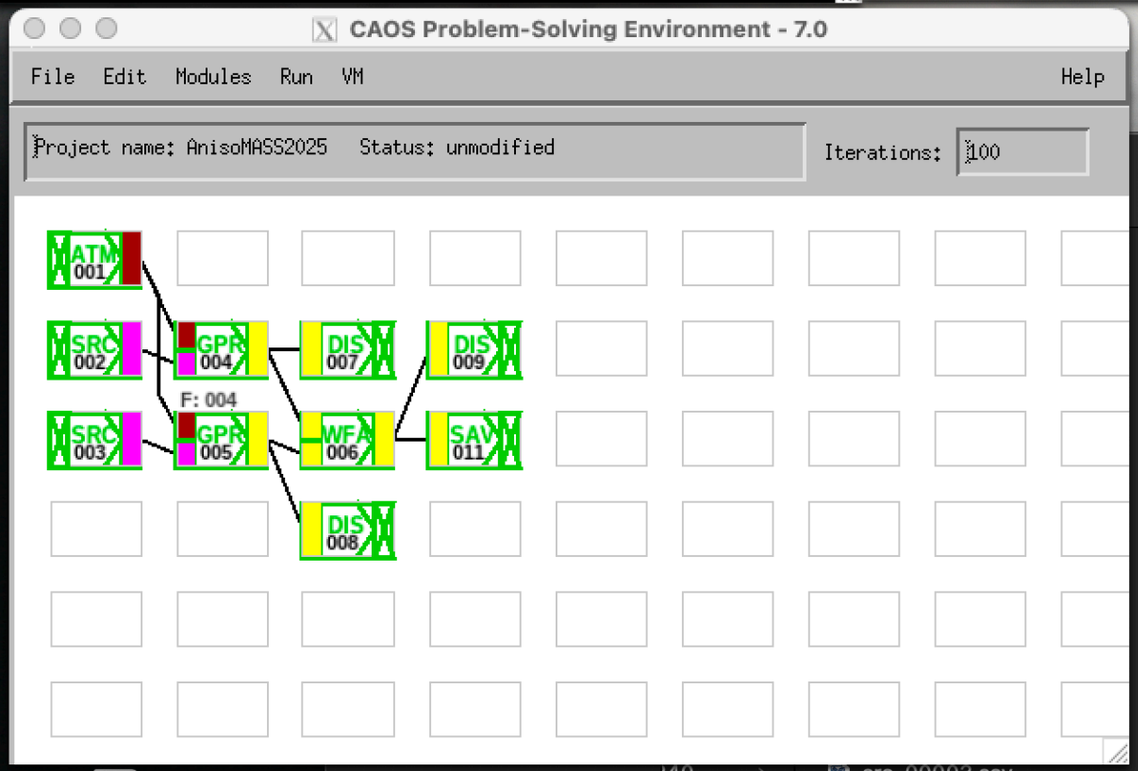
6- Repeat steps 4 and 5 for each chosen value of the off-axis angle.

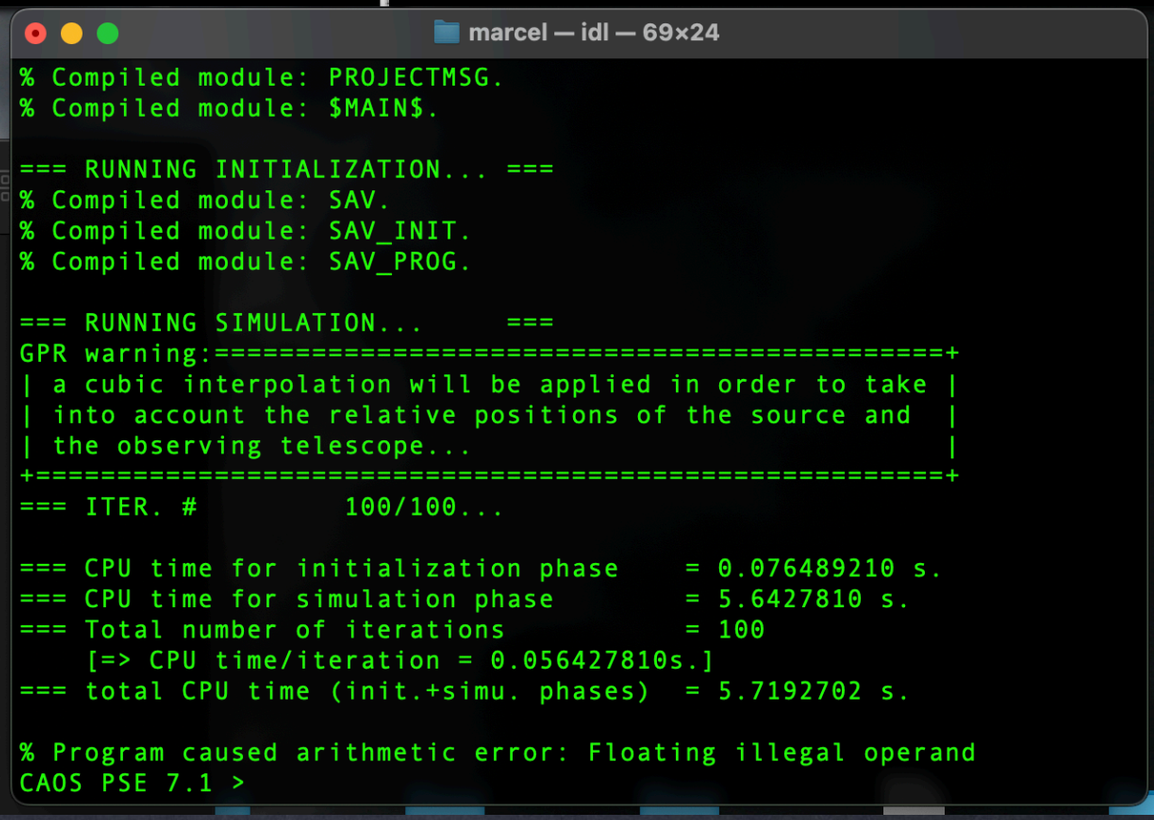
7- Compute the rms of the corrected wavefront and the FWHM for each resulting PSFs (two for each off-axis angle value) with the help of routine "dataprocessing.pro".

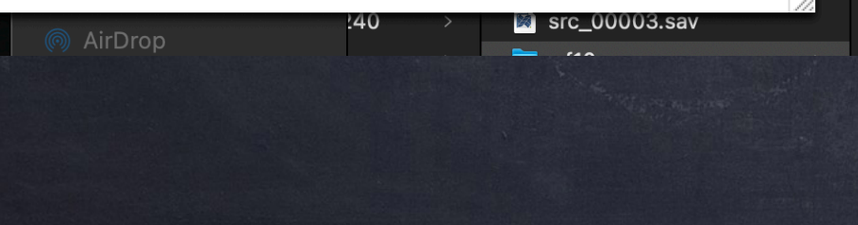

corr'd wf
Mean=241.nm rms=163.nm
nm
6.3E+02
5.4E+02
4.6E+02
3.8E+02
3.0E+02
2.2E+02
1.4E+02
6.1E+01
−1.9E+01
−1.0E+02
−1.8E+02
0.4
0.2
0.0
−0.2
−0.4
[m]
−0.4 −0.2 0.0 0.2 0.4
[m]

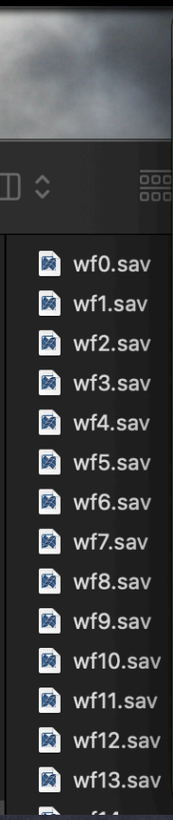

on-axis wf
Mean=−649.nm rms=539.nm
nm
4.1E+02
2.0E+02
−1.5E+00
−2.1E+02
−4.1E+02
−6.2E+02
−8.3E+02
−1.0E+03
−1.2E+03
−1.4E+03
−1.6E+03
0.4
0.2
0.0
−0.2
−0.4
[m]
−0.4 −0.2 0.0 0.2 0.4
[m]

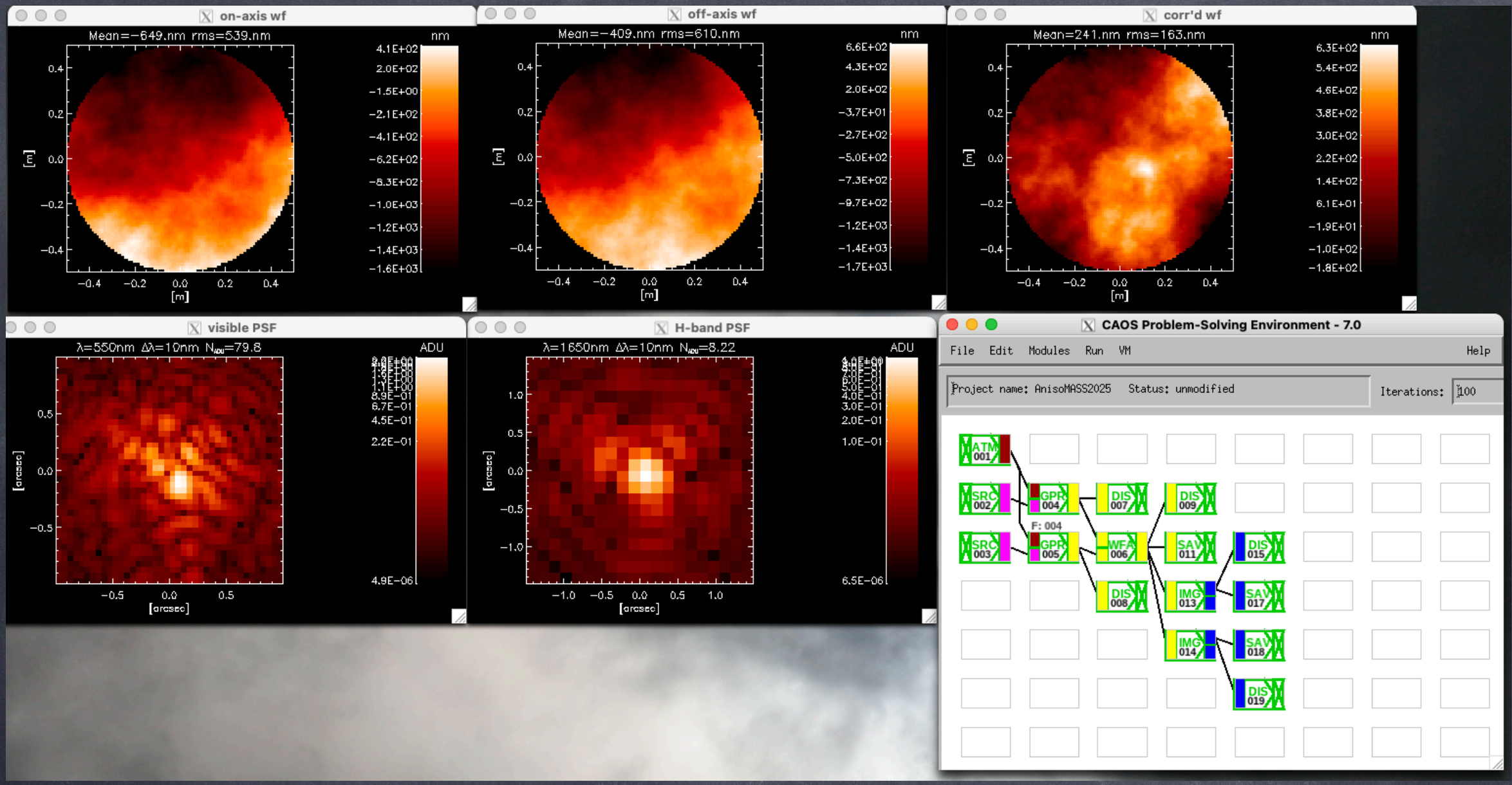

off-axis wf
Mean=−409.nm rms=610.nm
nm
6.6E+02
4.3E+02
2.0E+02
−3.7E+01
−2.7E+02
−5.0E+02
−7.3E+02
−9.7E+02
−1.2E+03
−1.4E+03
−1.7E+03
0.4
0.2
0.0
−0.2
−0.4
[m]
−0.4 −0.2 0.0 0.2 0.4
[m]


CAOS Problem-Solving Environment - 7.0
File Edit Modules Run VM Help
Project name: AnisoMASS2025 Status: unmodified
Iterations: 100
ATM 001
SRC 002
SRC 003
GPR 004
F: 004
GPR 005
DIS 007
WFA 006
DIS 008
DIS 009
SAV 011


marcel — idl — 69×24
% Compiled module: PROJECTMSG.
% Compiled module: $MAIN$.
=== RUNNING INITIALIZATION... ===
% Compiled module: SAV.
% Compiled module: SAV_INIT.
% Compiled module: SAV_PROG.
=== RUNNING SIMULATION... ===
GPR warning:
| a cubic interpolation will be applied in order to take |
| into account the relative positions of the source and |
| the observing telescope... |
=== ITER. # 100/100...
=== CPU time for initialization phase = 0.076489210 s.
=== CPU time for simulation phase = 5.6427810 s.
=== Total number of iterations = 100
[=> CPU time/iteration = 0.056427810s.]
=== total CPU time (init.+simu. phases) = 5.7192702 s.
% Program caused arithmetic error: Floating illegal operand
CAOS PSE 7.1 >


AirDrop
src_00003.sav


wf0.sav
wf1.sav
wf2.sav
wf3.sav
wf4.sav
wf5.sav
wf6.sav
wf7.sav
wf8.sav
wf9.sav
wf10.sav
wf11.sav
wf12.sav
wf13.sav




- addition of IMG module occurrences for two wavelengths

- => Δx for each band ?

  => FoV=N.Δx for each band ?