Telescopio Nazionale Galileo

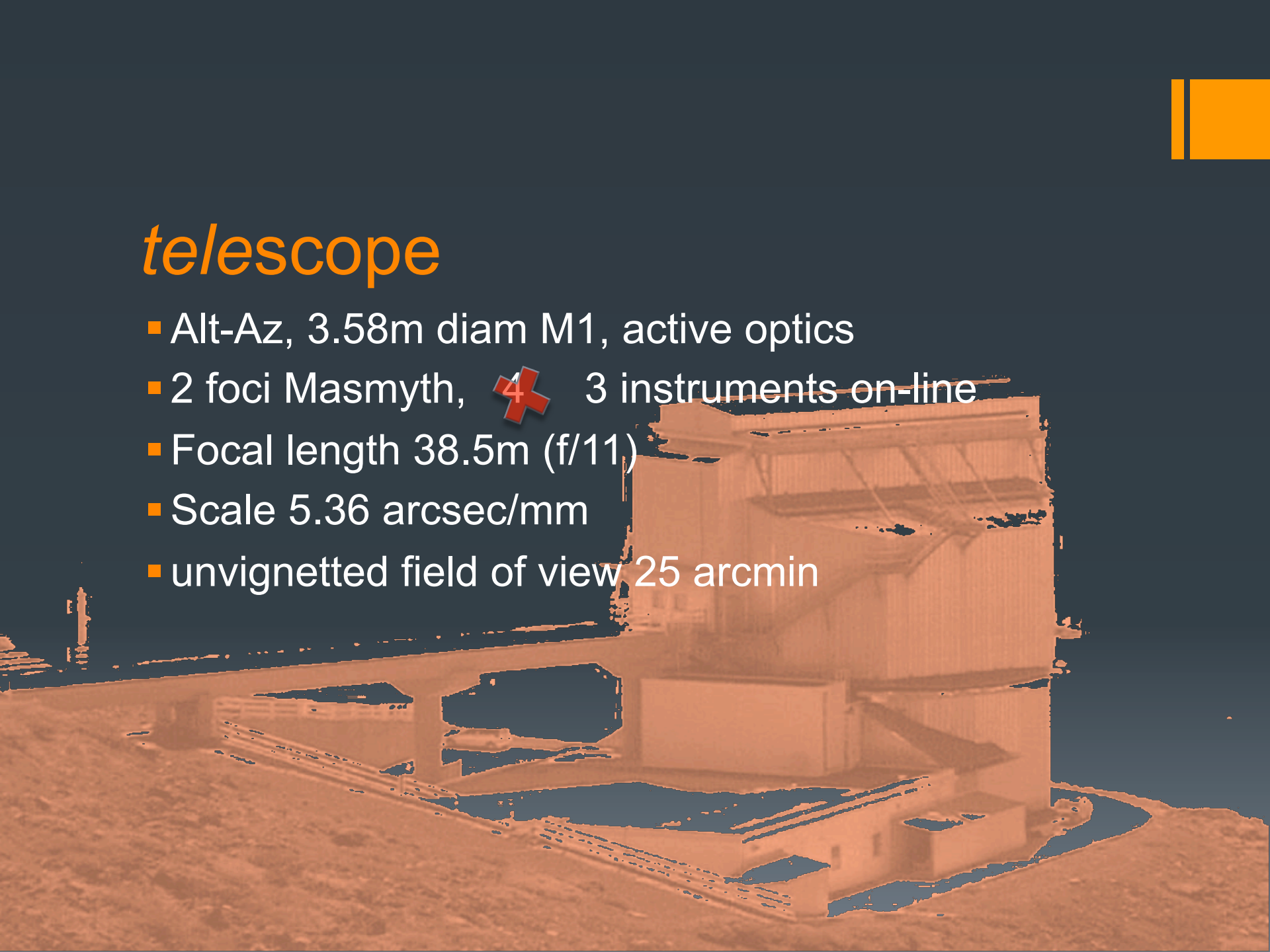
status report

Chi siamo? Dove andiamo?

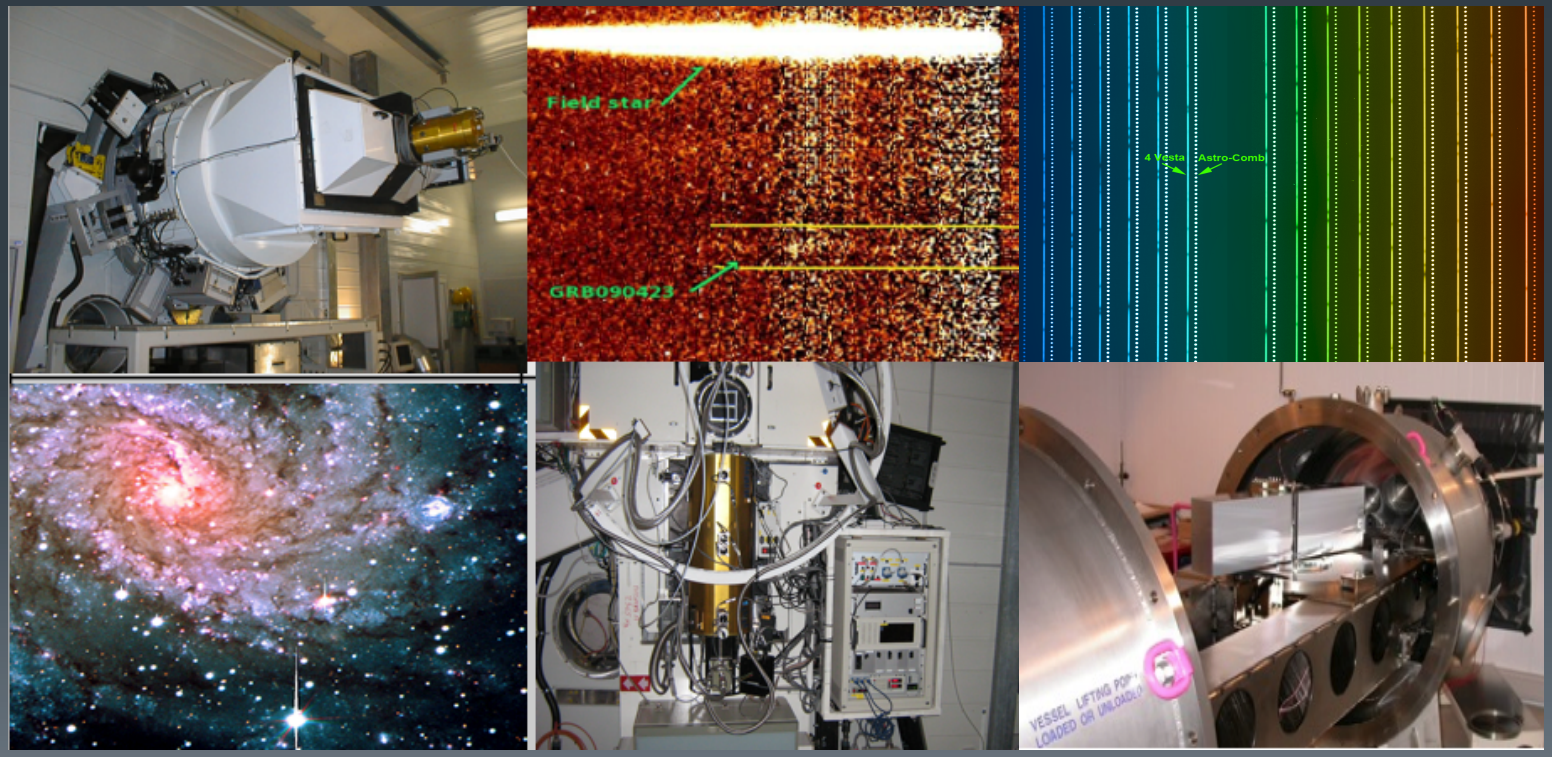
Emilio Molinari, Roma 21.02.2013

*tel*escope

- Alt-Az, 3.58m diam M1, active optics
- 2 foci Masmyth, ~~4~~ 3 instruments on-line
- Focal length 38.5m (f/11)
- Scale 5.36 arcsec/mm
- unvignetted field of view 25 arcmin



instru*ments*



d.o.lo.*res*.

- Instrument type: long slit spectrograph, multi object spectrograph, imaging
- Field of view: 8.6x8.6 arcmin
- Spectral resolution: 9 grism available from R=600 to R=6000
- 5 long slit 8.5 arcmin wide from 0.7 to 10 “
- 5 MOS mask available during one night

- Imaging: Johnsons and SDSS filters set always available
- Some narrow band filter available on request

- Wavelength range: 4360-9000
- Scale: 0.252 arcsec/pix
- Calibration: Th,Ar,Ne+Hg,Kr,He
- CCD: 2048x2048 E2V 4240 Thinned back-ill
- Pixel size: 13.5 µm

nics

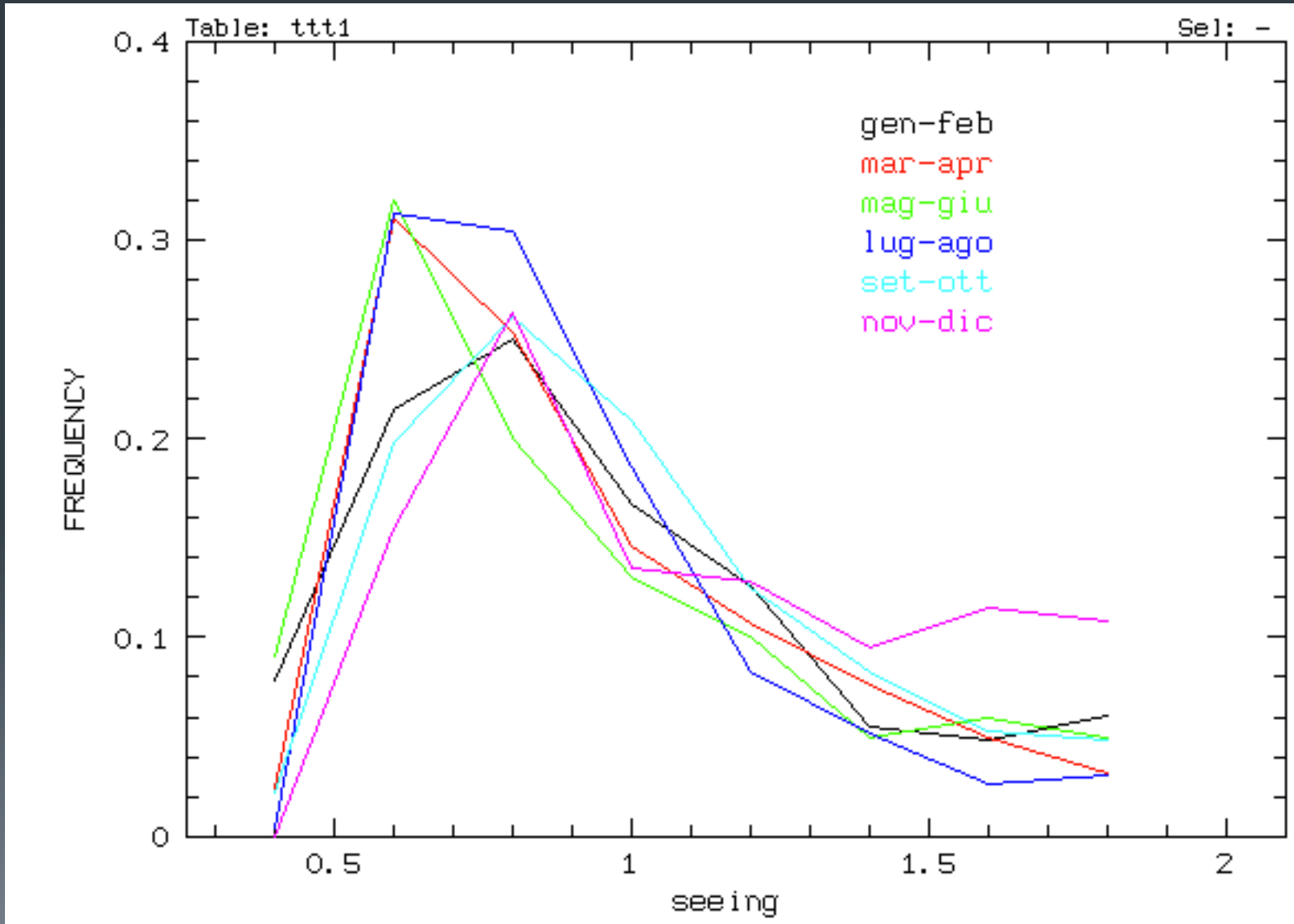
- Instrument type: Infrared camera and spectrometer
- Spectral resolution: Low (R = 50-500) and Medium (R=1250)
- Imaging: FOV = 4.2”
- Wavelength range: 0.9-2.5 μm
- Detector: HgCdTe Hawaii 1024x1024 (Rockwell)
- Pixel size: 18.5 μm
- Environment: Vacuum operation

harps-*n*

- Spectrograph type: Fiber fed, cross-disperser echelle spectrograph
- Spectral resolution: R = 115’000
- Fiber field: FOV = 1”
- Wavelength range: ll = 383 nm - 690 nm
- Total efficiency: e = 8 % @ 550 nm (incl. telescope and atmosphere @ 0.8" seeing)
- Sampling: s = 3.3 px per FWHM
- Calibration: ThAr + Simultaneous reference (fed by 2 fibers)
- CCD: Mosaic of two 2k4 E2V chips
- Pixel size: 15 µm
- Environment: Vacuum operation 0.001 K temperature stability

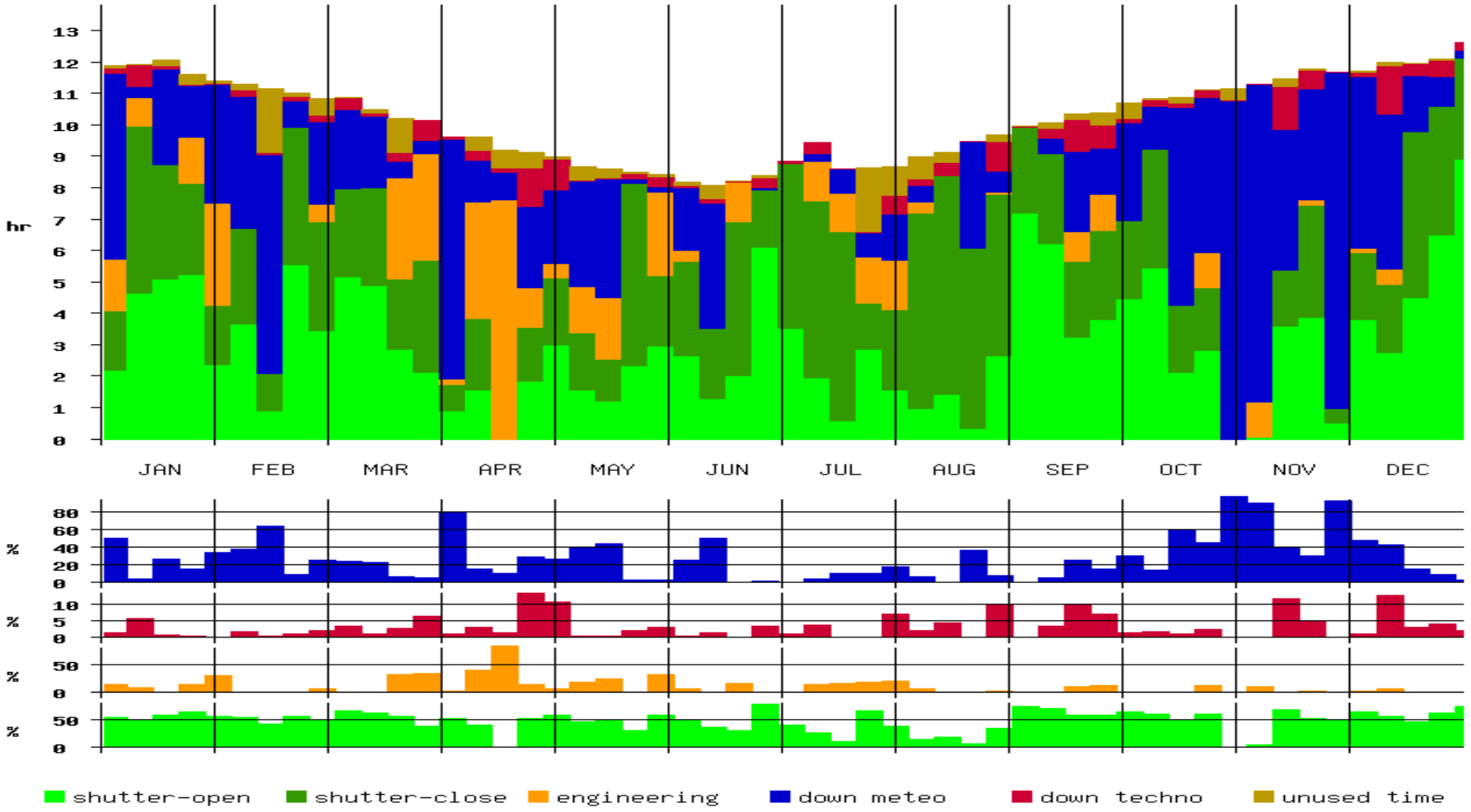
- Global short-term precision: 0.3 m/s (10E-9)
- Global long-term precision: better than 0.6 m/s (2x10E-9)
- Observational efficiency: SNR = 50 per extracted pixel on a Mv=8 in 1
- wavelength accuracy: 60 m/s (2x10E-7) on a single line

on the island: *seeing* good

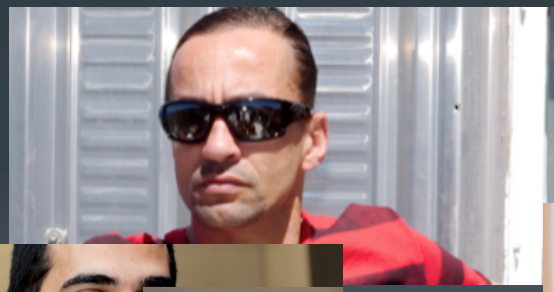


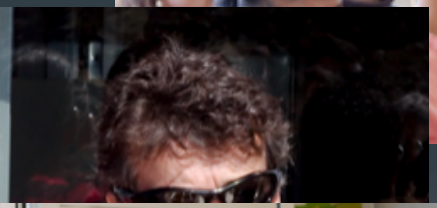
one *year* on the island

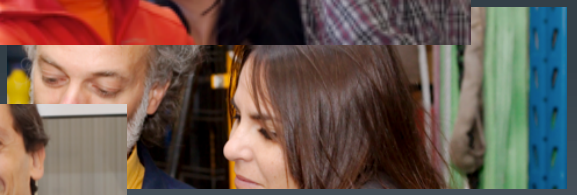
- The efficiency of TNG and ORM

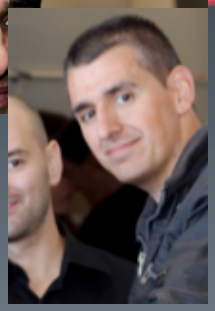


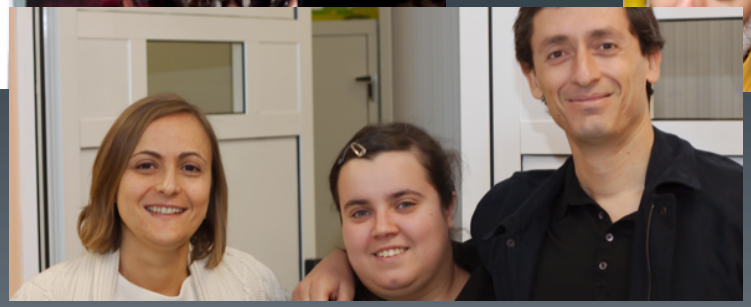
your *people* on the island





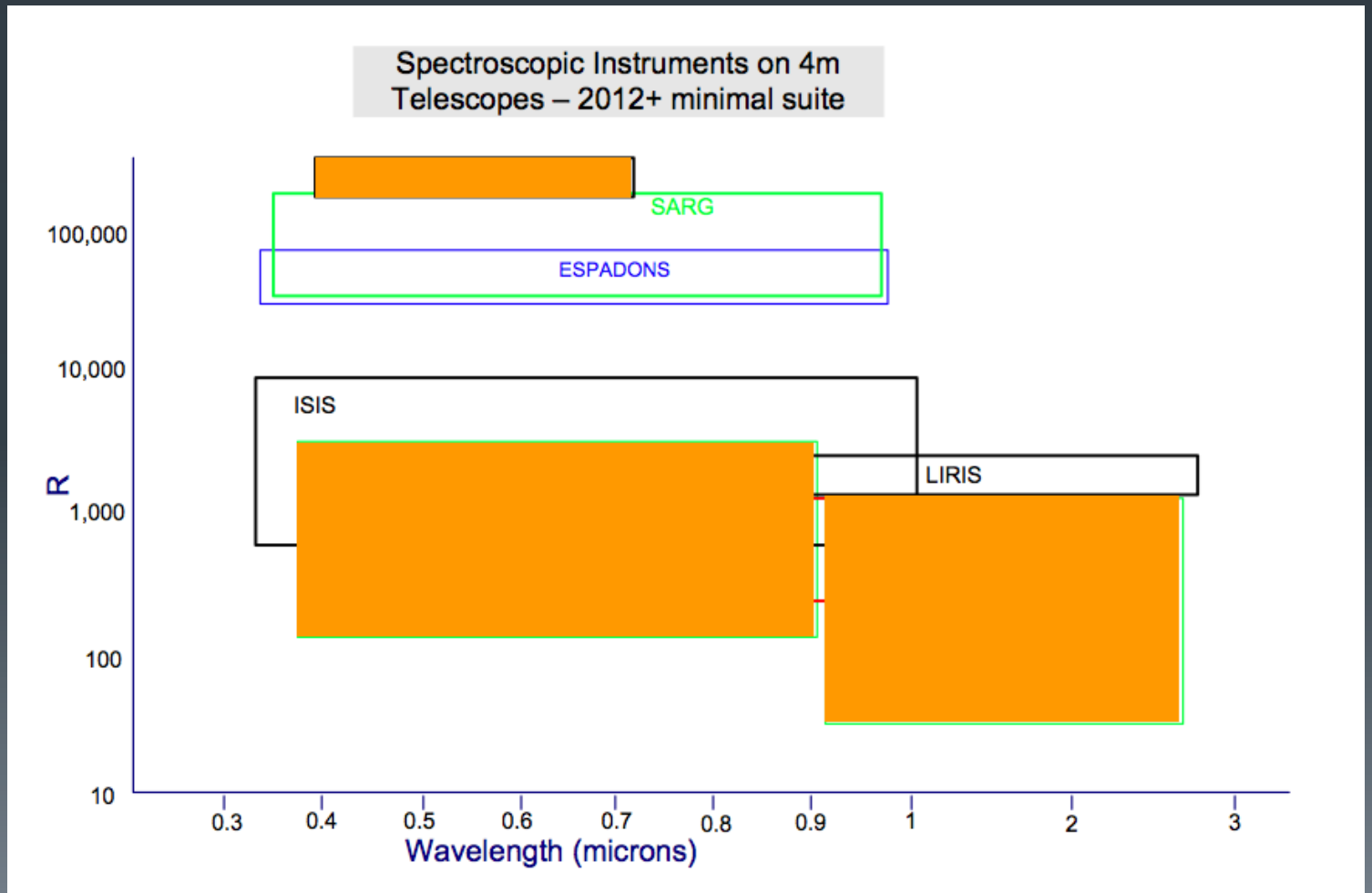




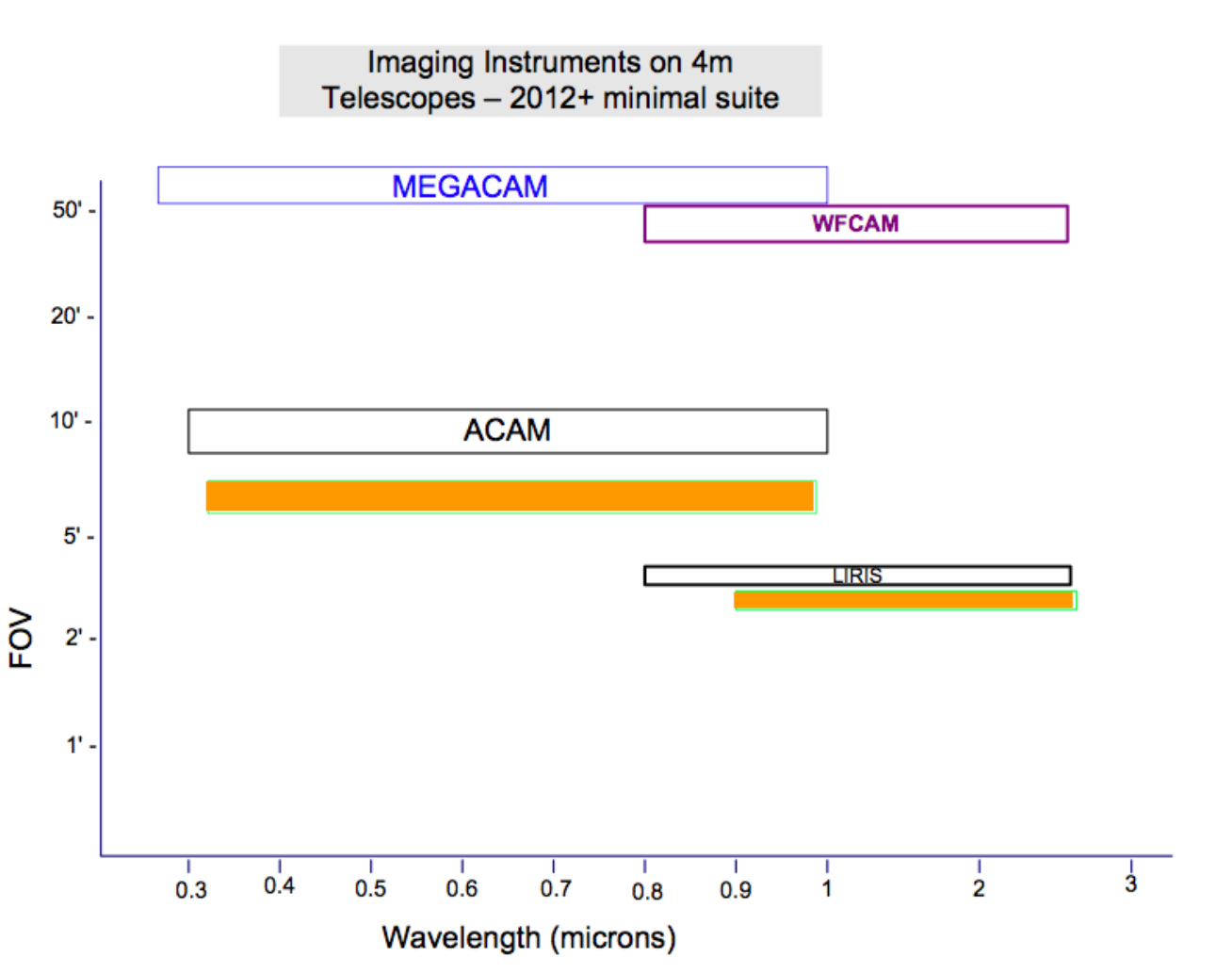


…and the *patronato*, our governing body on the peninsula

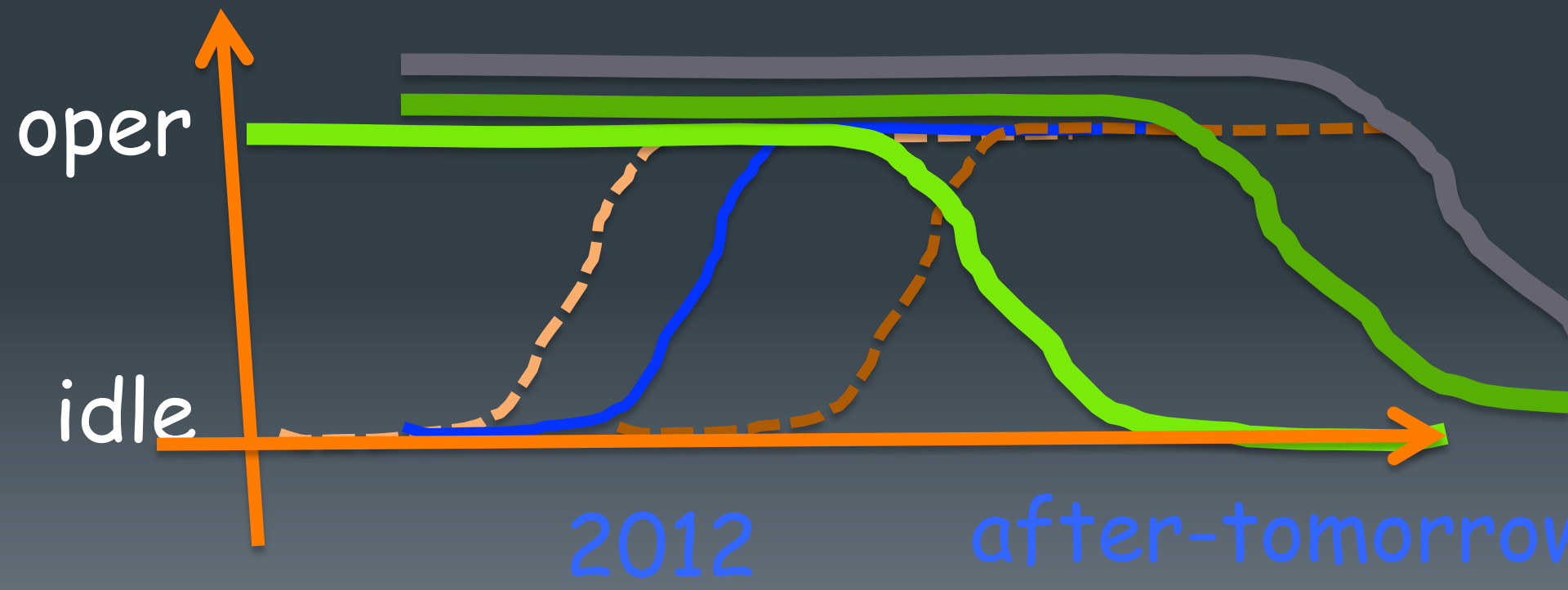
phase *space* I



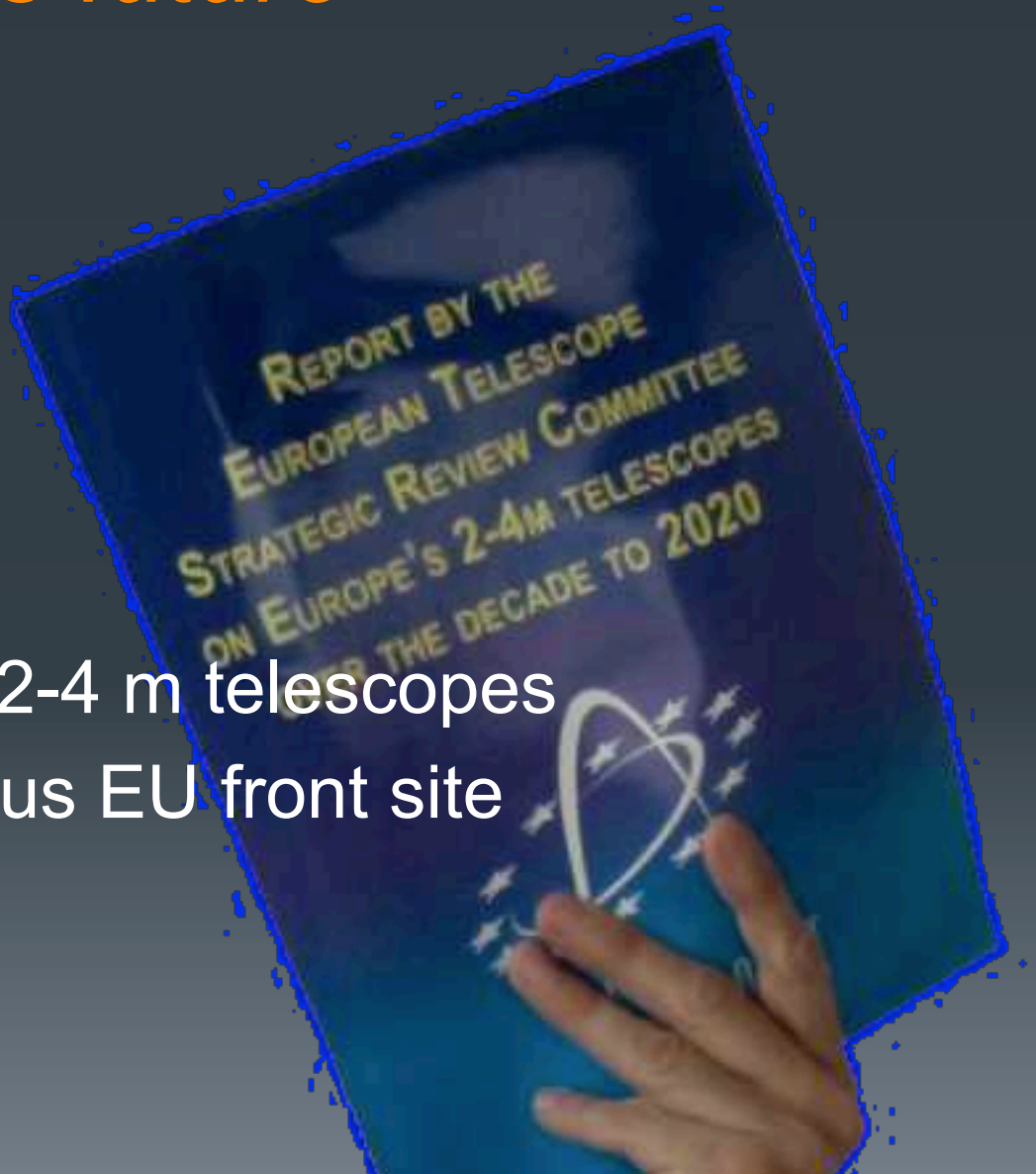
phase *space* II



end-of-life



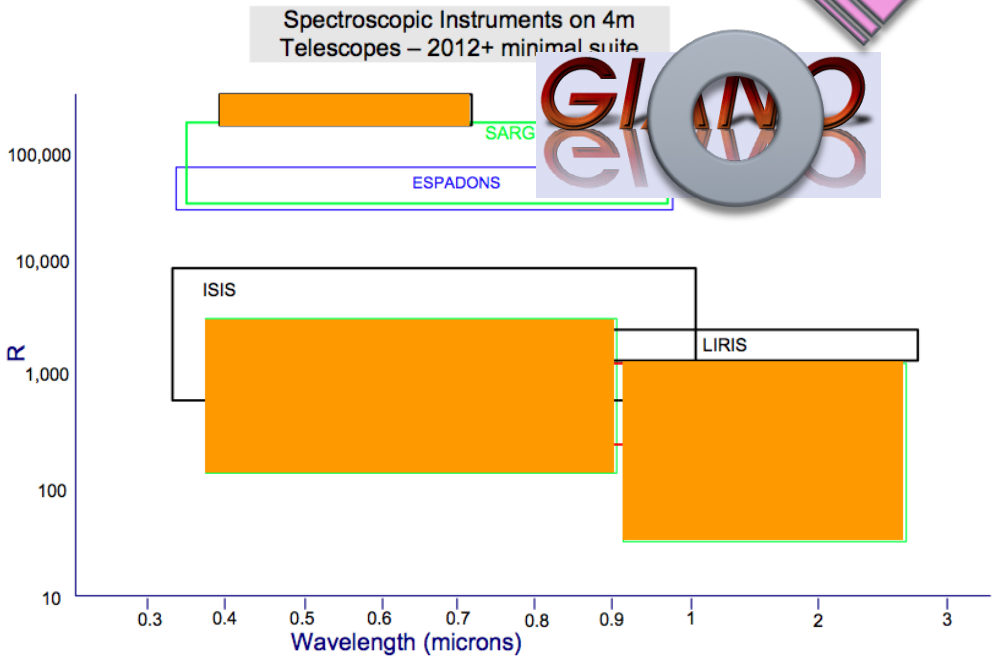
a recipe for the *future*

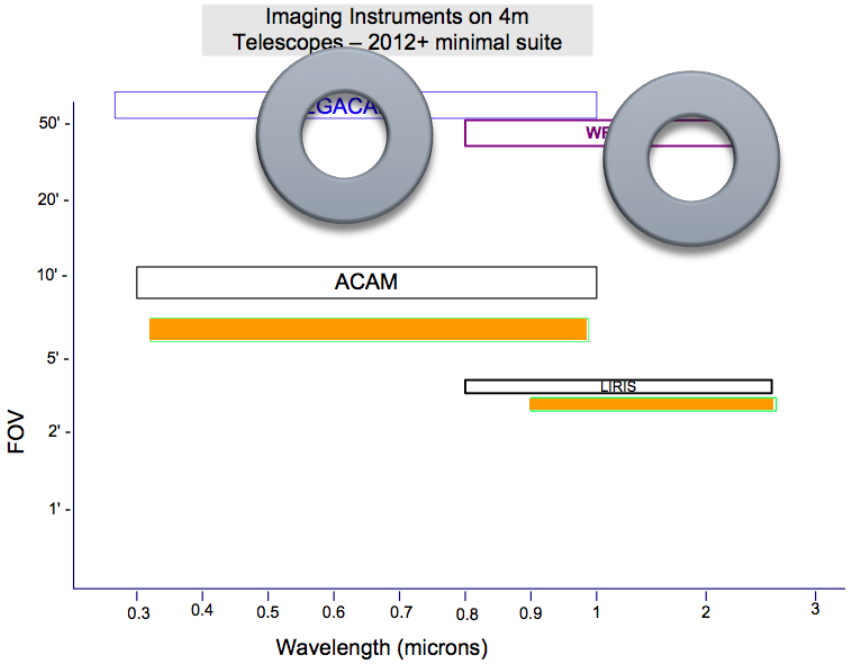


- Specialize the EU 2-4 m telescopes
- La Palma as obvious EU front site
- collaboration

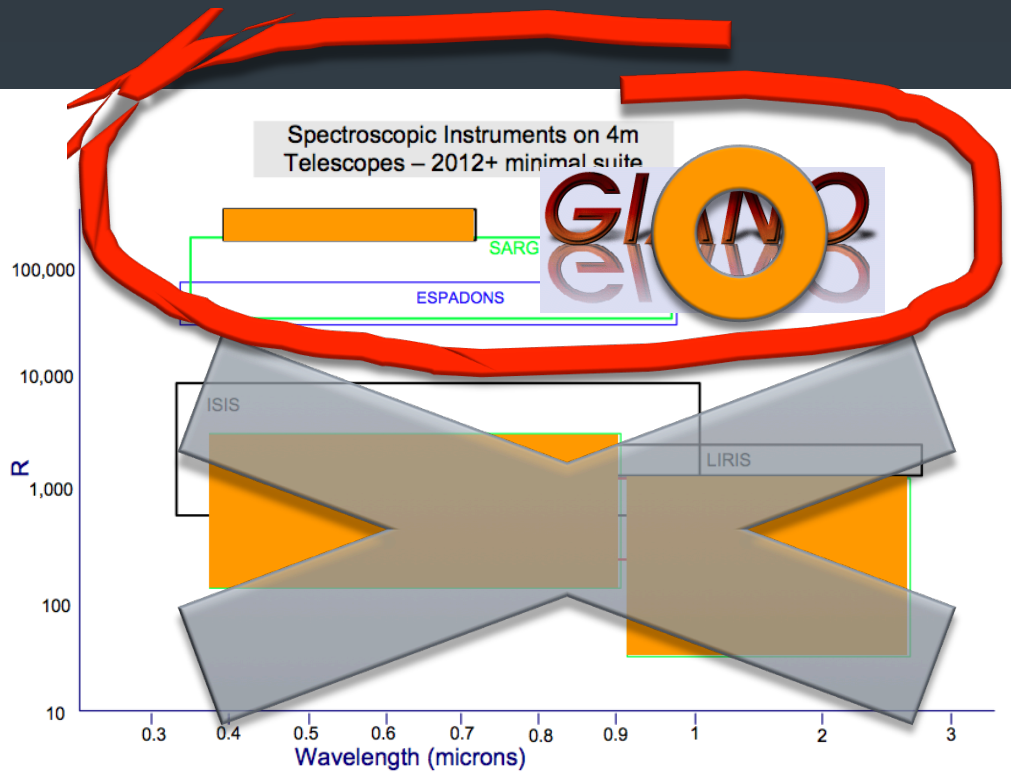
fill the holes

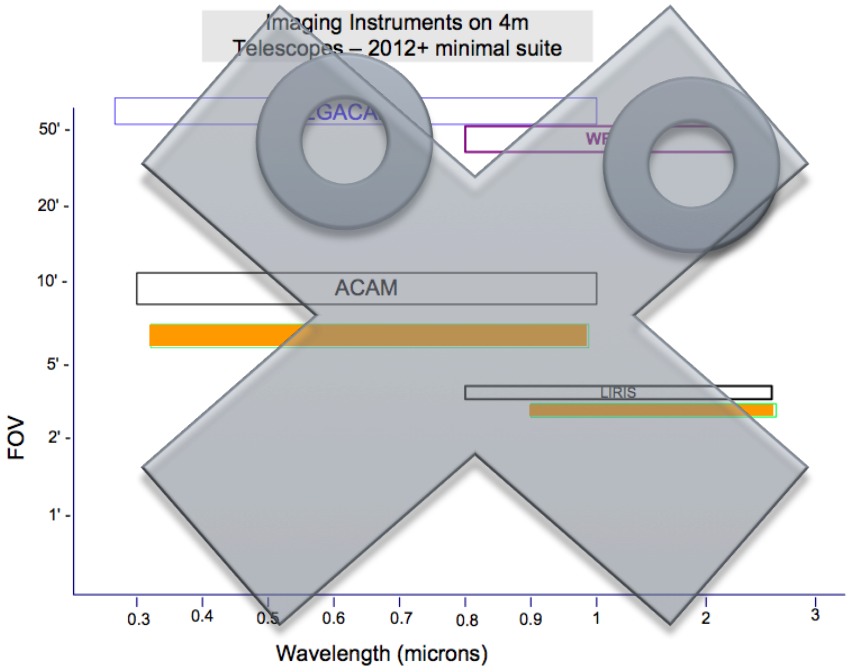
LO, TO





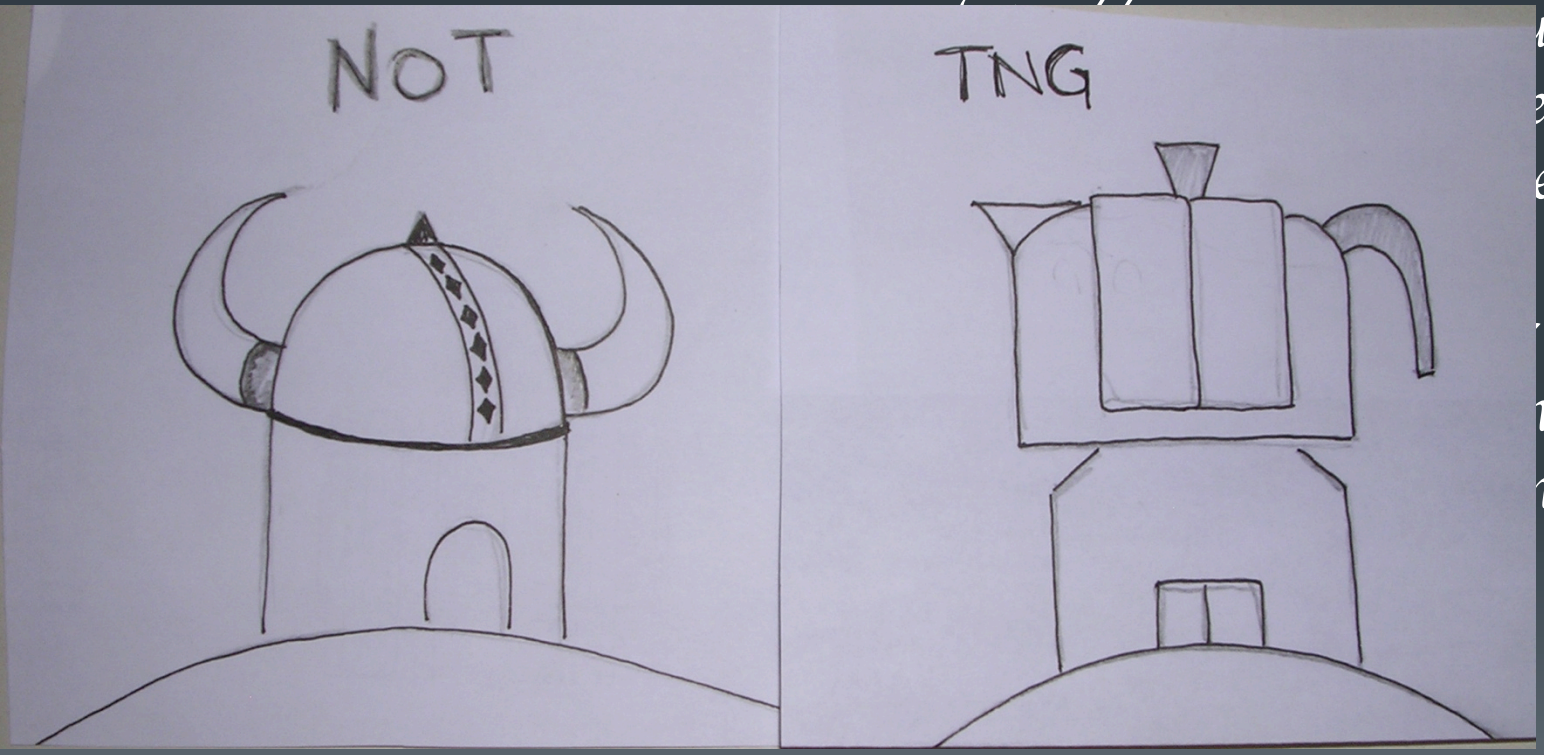
specialize


Spectroscopic Instruments on 4m
Telescopes – 2012+ minimal suite
SARG
ESPADONS
ISIS
LIRIS
R
100,000
10,000
1,000
100
10
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
2
3
Wavelength (microns)


Imaging Instruments on 4m
Telescopes – 2012+ minimal suite
ACAM
LIRIS
FOV
50'
20'
10'
5'
2'
1'
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
2
3
Wavelength (microns)

col*labor*ation !

is this really true?



To the Astronomical Communities of

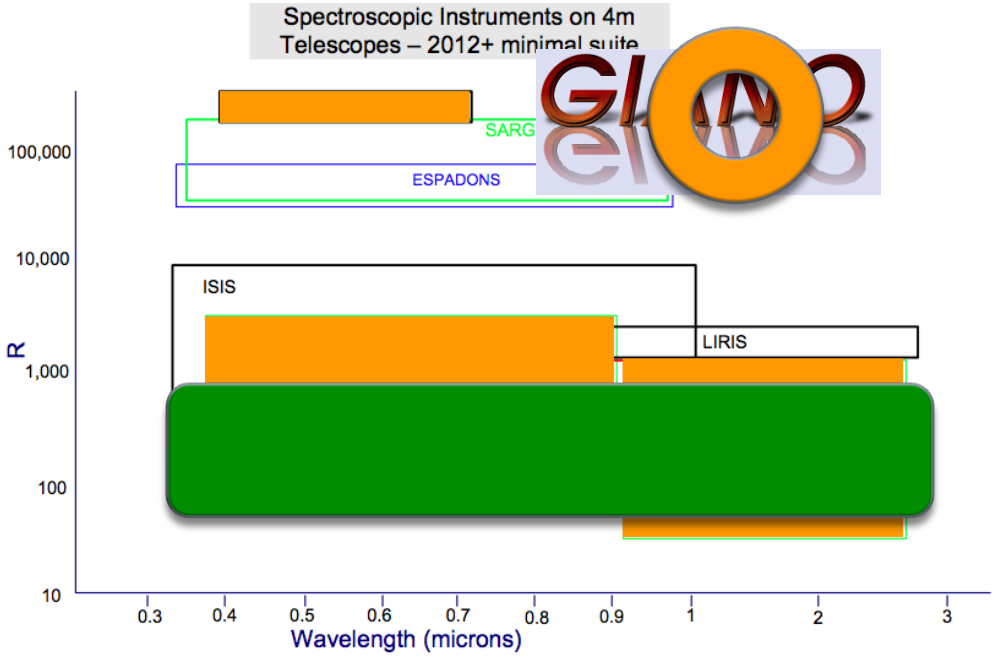
Following the recommendations to AS
Europe's 2-4m telescopeas presented
.org/spip.php?
TNG and NO
enter into a clo

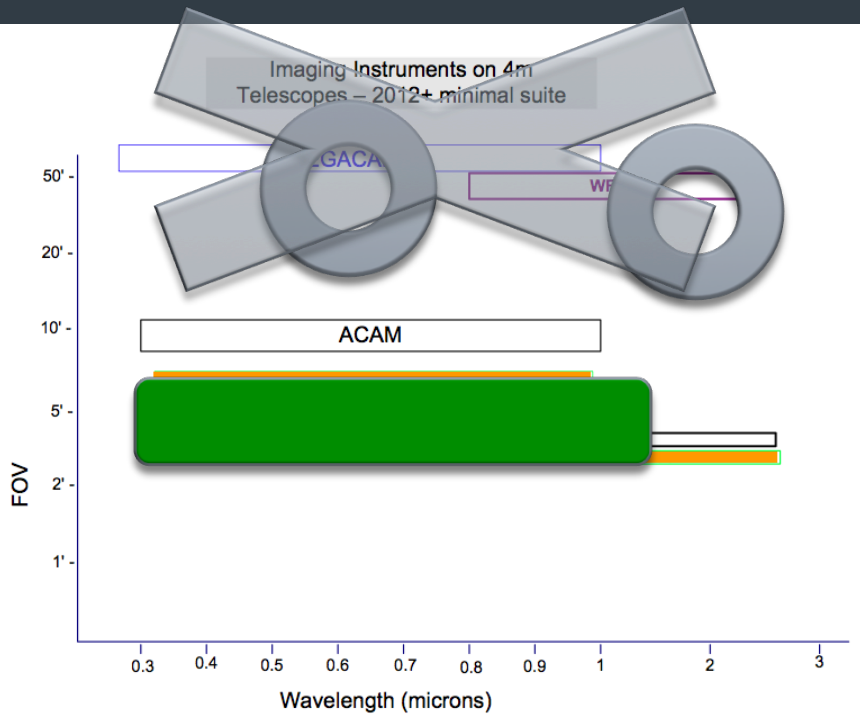
intention to of
a joint call fo
enclature; Per

** 10 nights at TNG open for Nordic*
** 20 nights at NOT open for Italian*

filling the holes *together*

no wide field, though

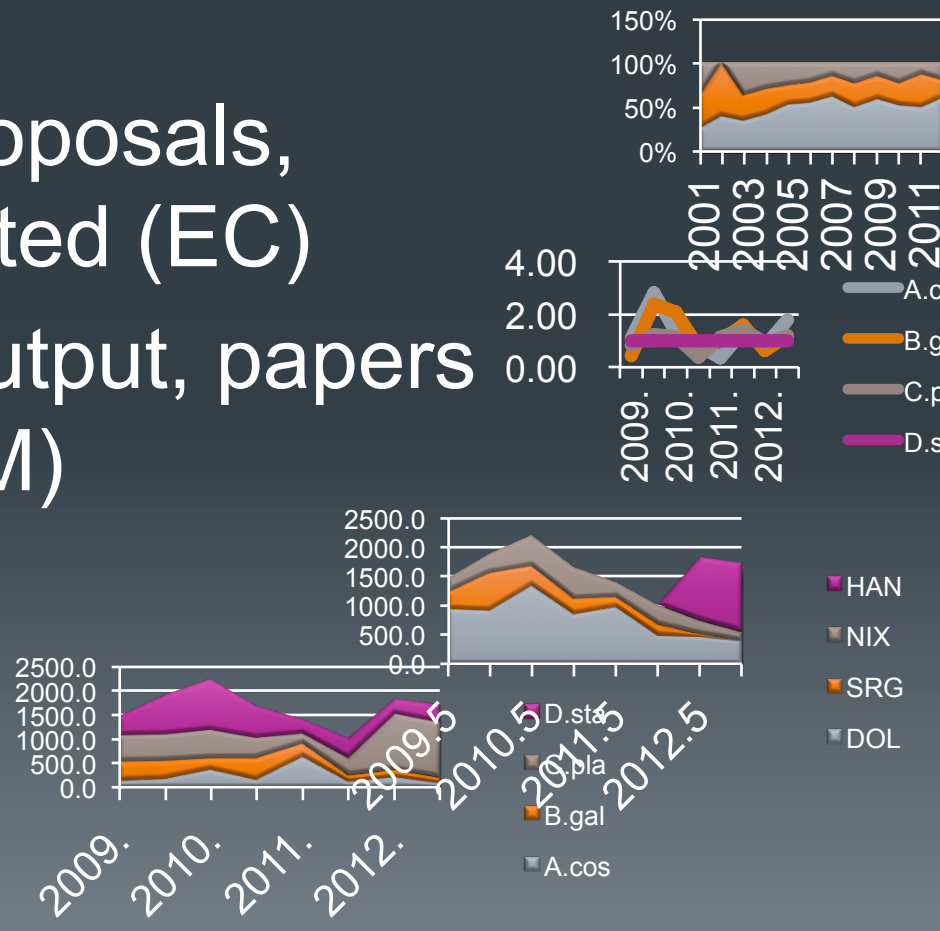




also the *press* says

what have we being *ing, *before*?

- An analysis of the proposals, submitted and accepted (EC)
- An overview of the output, papers and comparisons (EM)



paper writers I

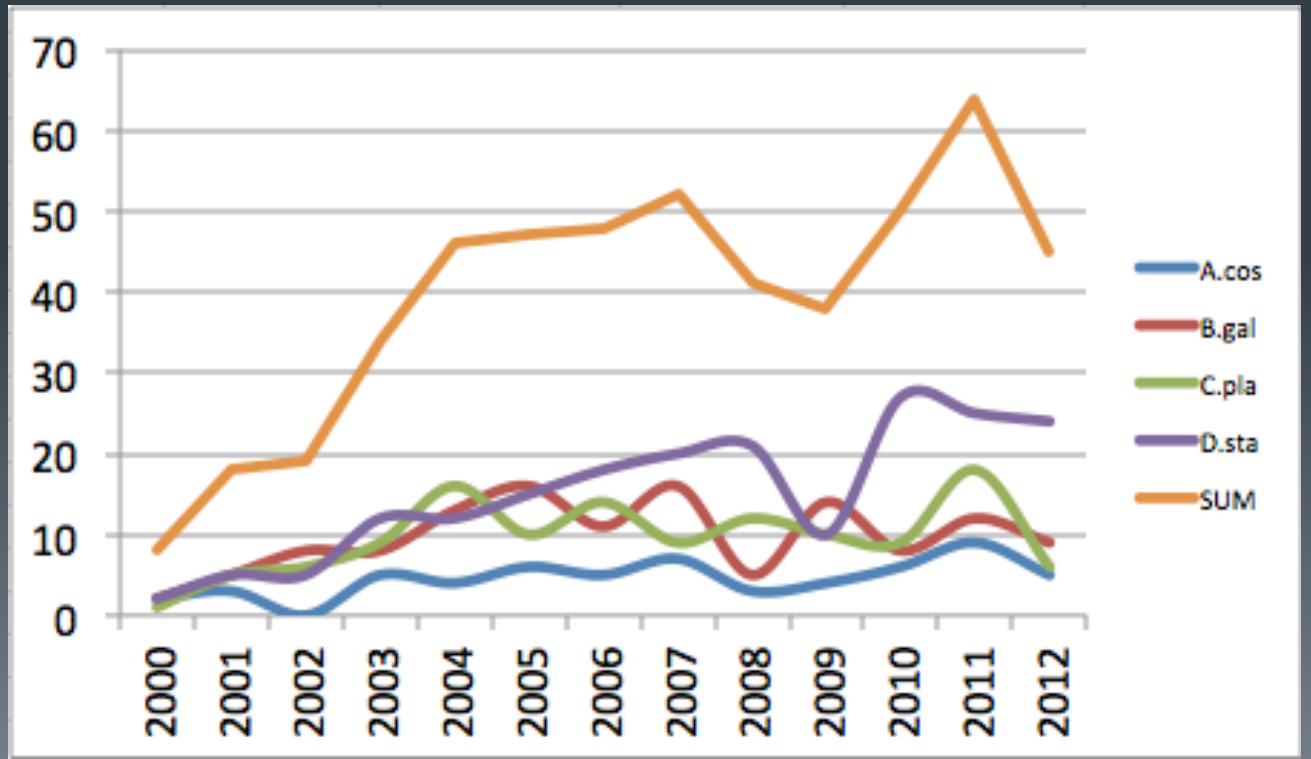
refereed papers divided by year of publication and by category:

(A) Cosmology

(B) Galactic satronomy

(C) Planets

(D) Stellar astronomy WINNER



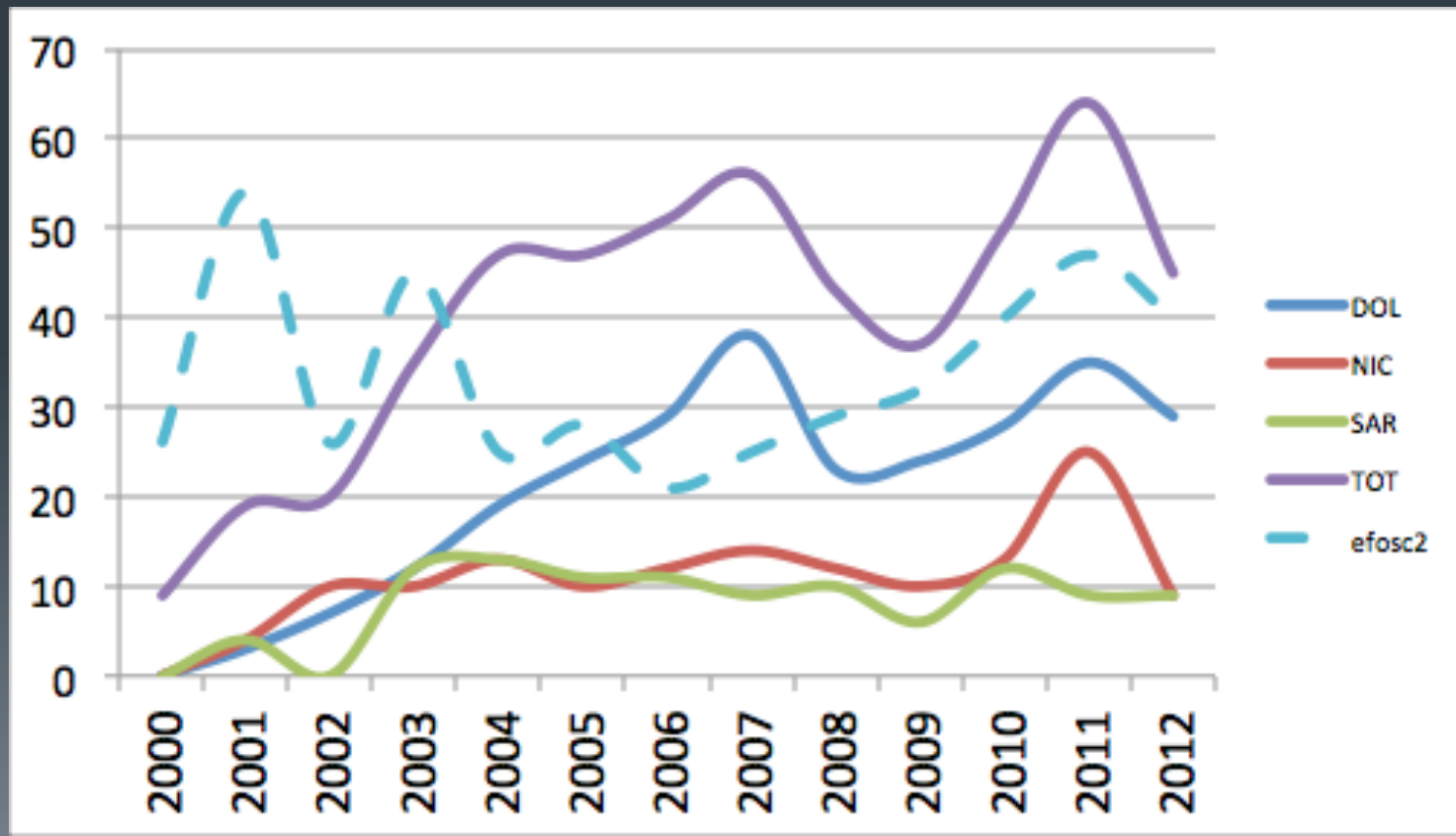
paper writers II

- refereed papers divided by year of publication and by instrument:

DOLORES WINNER

NICS

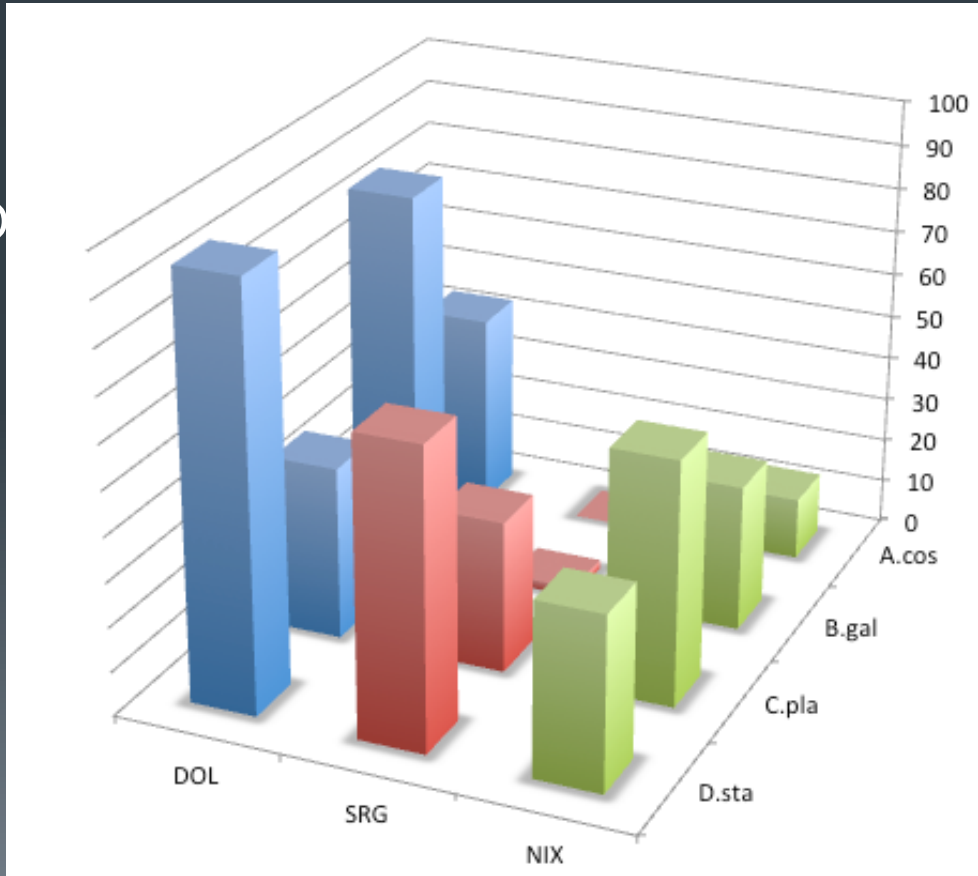
SARG



data producers

- categories of paper for each instrument

planets prefer NICS (and vv)
cosmology and MW prefer DOLO
SARG gives more to stars



(un)fair *comparison*

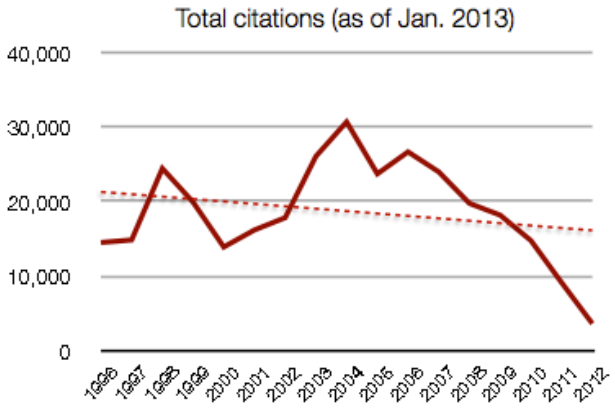


Fig. 2a: Total citations of papers using ESO data (with trendline)

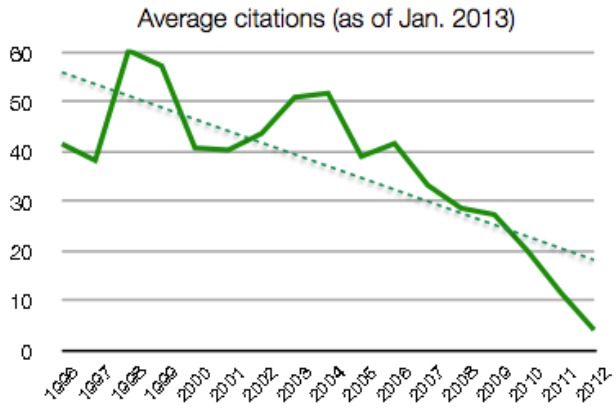
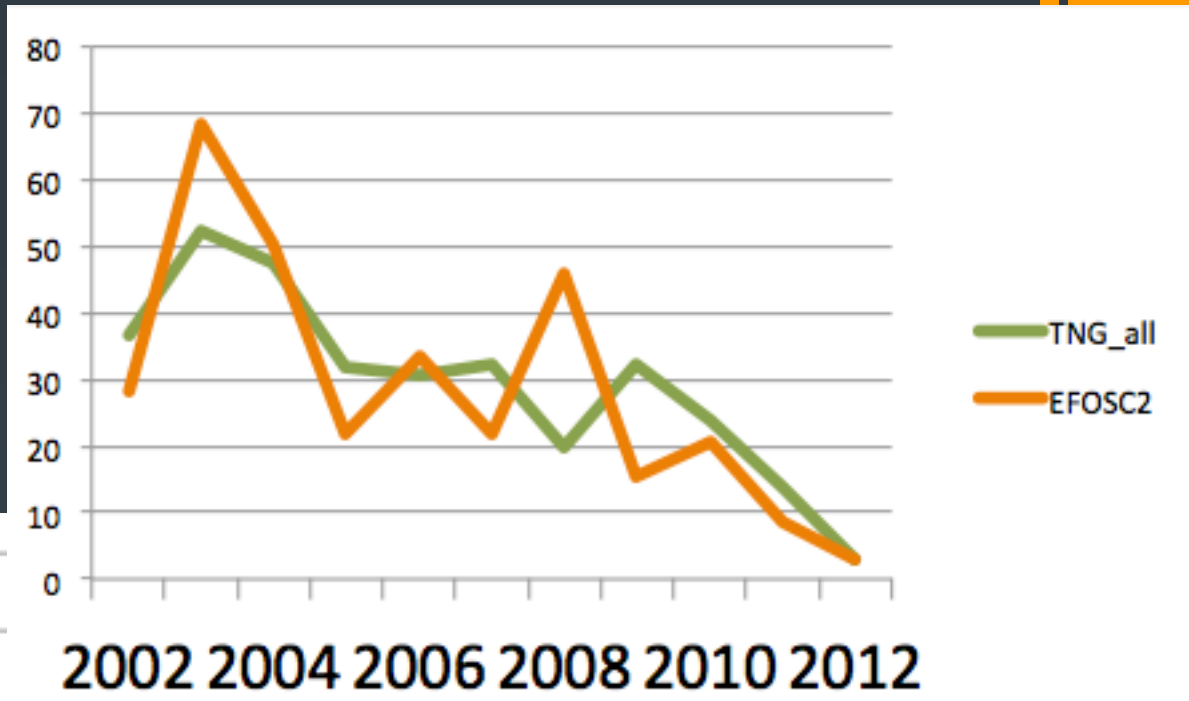
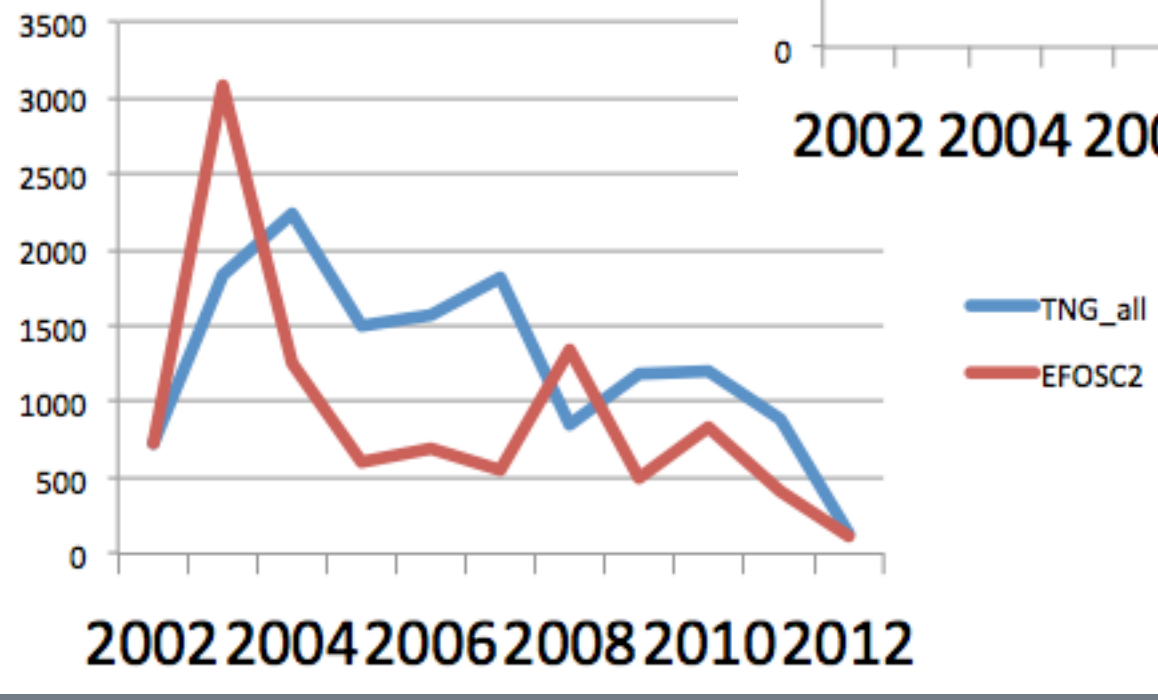


Fig. 2b: Average citations of papers using ESO data (with trendline)

- ESO publishes twice a year a report for its publications. It is impossible to match exactly the data mining of papers and citations which ESO takes from ADS with custom (and paid?) tools.
- We shown EFOSC2 papers together with all_TNG. EFOSC2 is now the unique instrument for NTT, TGN twin.

efosc2 *only*





total citations (left) and normalized to no. of papers (above)

top papers

- ESO shows its Top20 papers by citation numbers, the first being the “Measurements of Omega and Lambda from 42 High-Redshift Supernovae (1999)“ milestone with over 6800 citations
- We show here the TNG Top10, trying to learn something …

top*10* papers (1-5)

462 Santos N. C., Israelian G., Mayor M.
Spectroscopic [Fe/H] for 98 extra-solar planet-host stars. Exploring the probability of planet formation 3/2004

225 Salvaterra R., Della Valle M., et al
GRB090423 at a redshift of z~8.1 10/2009

223 Abdo A. A., Ackermann M., et al
The First Catalog of Active Galactic Nuclei Detected by the Fermi Large Area Telescope 5/2010

198 Santos N. C., Israelian G., et al
Statistical properties of exoplanets. II. Metallicity, orbital parameters, and space velocities 1/2003

195 Fiore F., Brusa M., et al
The HELLAS2XMM survey. IV. Optical identifications and the evolution of the accretion luminosity in the Universe 10/2003

top*10* papers (6-10)

171 Maiolino R., Schneider R., et al
A supernova origin for dust in a high-redshift quasar 9/2004

163 Gratton R. G., Carretta E., et al
Abundances for metal-poor stars with accurate parallaxes. I. Basic data 6/2003

136 Silvotti R., Schuh S., et al
A giant planet orbiting the `extreme horizontal branch' star V391 Pegasi 9/2007

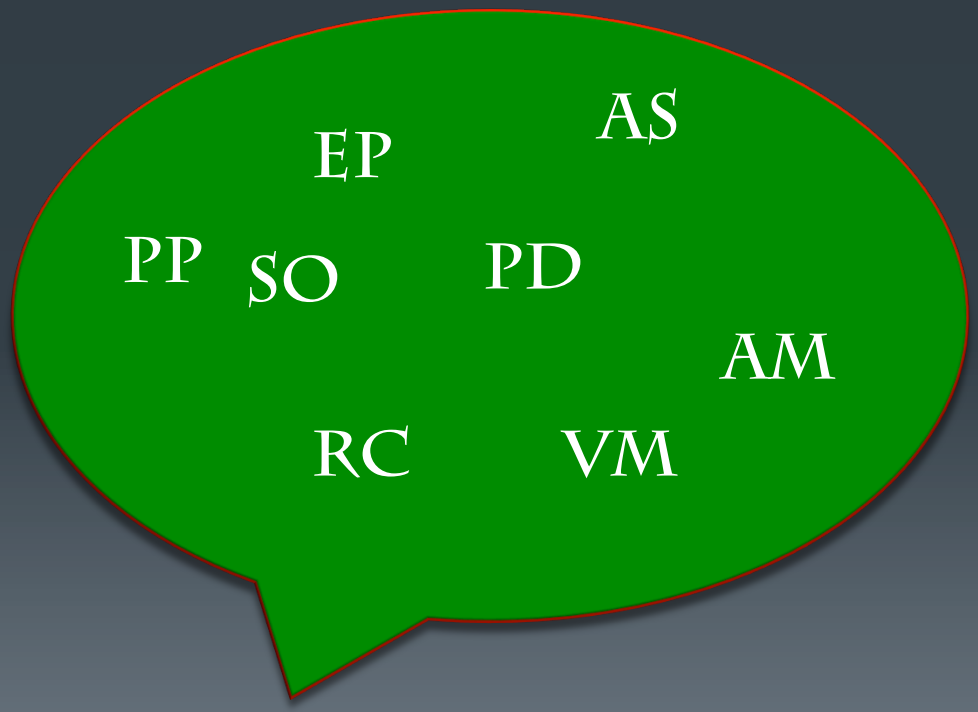
135 Kann D. A., Klose S., et al
The Afterglows of Swift-era Gamma-ray Bursts. I. Comparing pre-Swift and Swift-era Long/Soft (Type II) GRB Optical Afterglows 9/2010

131 Santos N. C., Israelian G., et al
Spectroscopic metallicities for planet-host stars: Extending the samples 7/2005

top*10* papers

not really a robust statistics…:

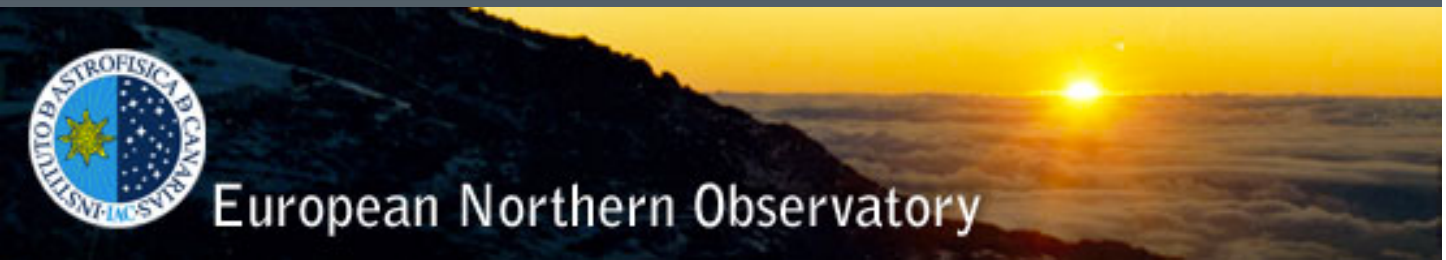
- 4/10 non-Italian first author
- 4/10 exoplanet papers
- 2/10 GRB papers
- AGN… stellar abundances…
- but wait for other presentations !



what we have now in our hands

old international commitments

- CCI agreement with Spain, 20% of real observing time (64 n/yr)
- ITP 5% international time (via CCI, 15 n/yr)
- OPTICON Trans National Access program (now 28 n/yr)



OPTICON

the harps-n *agreement*

- 80 nights/yr for 5 yrs, starting May 2012 for the Consortium observing program
- 1/5 share in the Exec Board of harps-n
- 3/18 share in the above mentioned ST consortium for the contribution to build/operate harps-n (via FGG)
- a good (still half?) hand on the (famous) pipeline

some inaf *guidelines*

- for the Italian exploitation of the harps-n investment
- from a big community effort

≥ 80 nights/yr

a *possible* norman connection

- - 20 TNG nights/yr
- + 40 NOT nights/yr
- a still undefined share in the next not-instrument NTE

let us experiment, please

- PAOLO (a polarimeter for d.o.lo.res.)
- BATMAN (new micromirrors for gotham city)
- astrometry on dolores (ex EC)
- AND .. (keep a door open to research, visiting instruments…)

dulcis in fundo

la torta, of course

EC