

subsystem

how REM listens, talks in and out



REM

automatic for the people



Chizzola P., Dini T., Molinari A., d'Alessio F., Covino S., Fugazza D., Malaspina G., Nicastro L., Righi C., Stefanon M., Testa V., Tresoldi F., Vitali F., Fugazza D., Malaspina G., Nicastro L., Righi C., Stefanon M., Testa V., Tresoldi F., Vitali F., Fugazza D., Malaspina G., Nicastro L., Righi C., Stefanon M., Testa V., Tresoldi F., Vitali F.

2016 d'REM Team: e.molinari, s.covino, f.d'alessio, d.fugazza, g.malaspina, l.nicastro, c.righi, m.stefanon, v.testa, d.tresoldi, f.vitali

REM automatic for the people

explore the REM archive

BIG CHANGES

REM subsystems
how REM listens, talks in and outside the dome

TORTORA

in the press

REM on a stamp

too far away from me

future openings


REM is now (nearly) operational, the call for proposal for M2 SA will close in 2 days.

Chimab CNTA already filed its tender.

REM is now part of the Italian offer to the European (EMIR) proposal.

NO, we have a plan to refresh our old electronics.





2016 d'REM Team: e.molinari, s.covino, f.d'alessio,
d.fugazza, g.malaspina, l.nicastro, c.righi, m.stefanon,
v.testa, d.tresoldi, f.vitali

Chincarini, G.;
Cutispoto, G.;
A.; Molinari, E.
R.; Sciuto, G.
Campana, S.;
A.; Fiore, F.;
Lorenzetti, D.;
Meurs, E.; Mo
Rodono, M.; St

Chincarini, G.; Zerbi, F.; Antonelli, A.; Conconi, P.;
Cutispoto, G.; Covino, S.; D'Alessio, F.; de Ugarte Postigo,
A.; Molinari, E.; Nicastro, L.; Tosti, G.; Vitali, F.; Mazzoleni,
R.; Sciuto, G.; Stefanon, M.; Jordan, B.; Burderi, L.;
Campana, S.; Danziger, J.; di Paola, A.; Fernandez-Soto,
A.; Fiore, F.; Ghisellini, G.; Goldoni, P.; Israel, G. L.;
Lorenzetti, D.; Mc Breen, B.; Masetti, N.; Messina, S.;
Meurs, E.; Monfardini, A.; Palazzi, E.; Paul, J.; Pian, E.;
Rodono, M.; Stella, L.; Tagliaferri, G.; Testa, V.; Vergani, S.



REM on a stamp

M1 60cm f/2.2
Nasmyth f/8
FoV 10'x10'
time on target 30"
ROS2: g, r, i, z
REMIR: z, J, H, Ks



Offered to community via
INAF-TAC and Chilean CNTAC
**International agreement
between INAF+ESO**

M1 60cm f/2.2

Nasmyth f/8

FoV 10'x10'

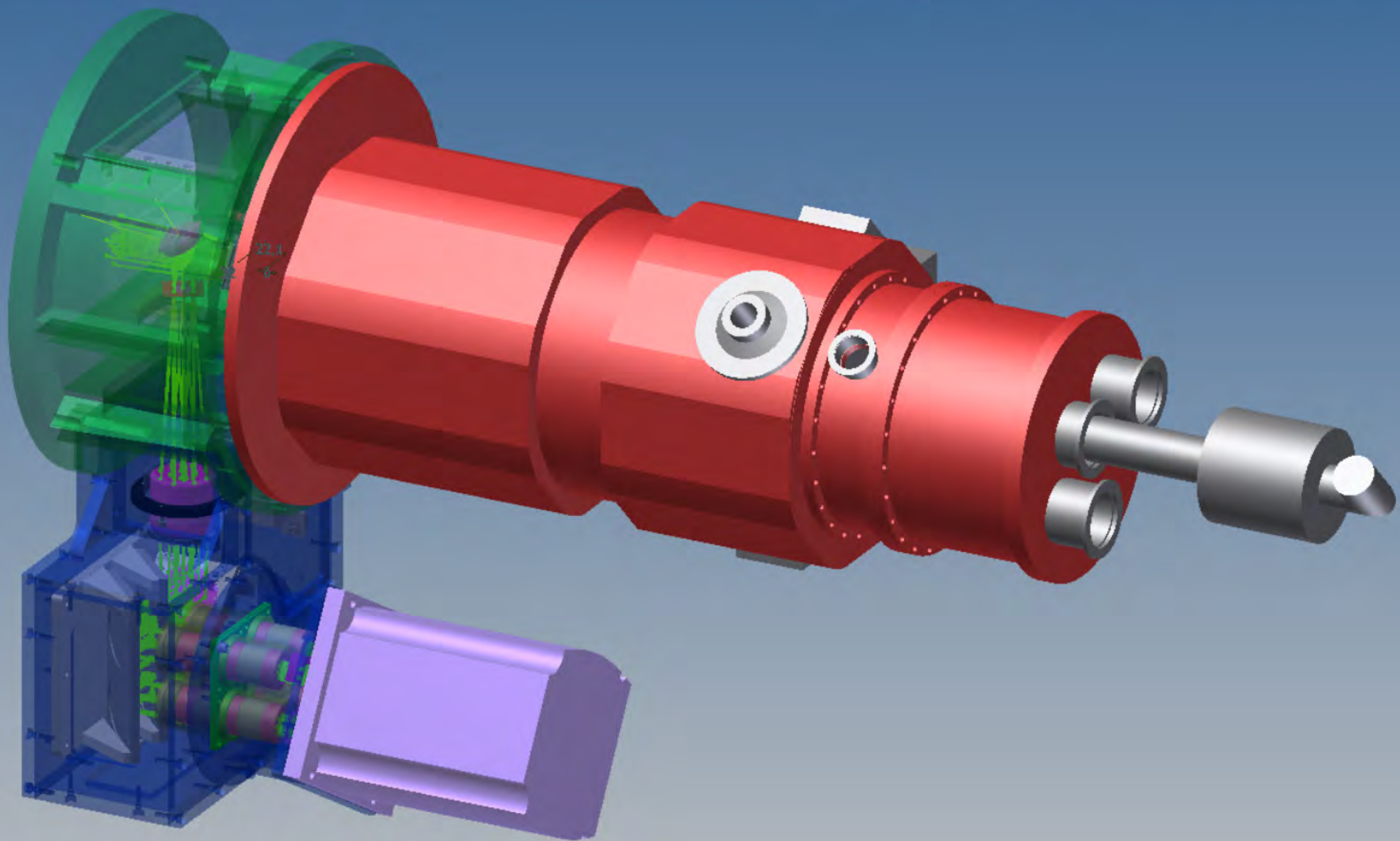
time on target 30"

ROS2: g, r, i, z

REMIR: z, J, H, Ks

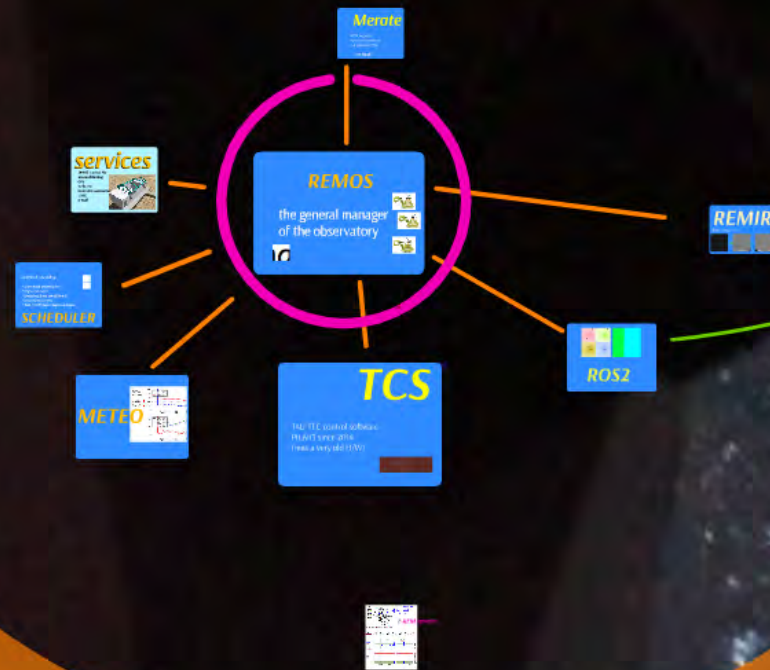


**Offered to community via
INAF-TAC and Chilean CNTAC
International agreement
between INAF+ESO**



REM subsystems

how REM listens, talks in and outside the dome



Merate

WPM website
webcam repository
GIP from the RMS
DR input

REMOS

the general manager
of the observatory



services

- DOME control PLC
- air conditioning
- GPS
- webcams
- CRIS-CCN connection
- LOGS
- e-mail



REMIK

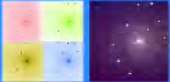
after wedge 3 bit



optimized scheduling

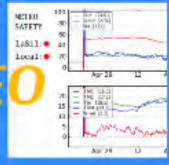
- * after each observation
- * higher airmass
- * grouping, time constrained
- * prioritized targets
- * fast / GIB rapid response mode

SCHEDULER



ROS2

METEO



TCS

TAU-TEC control software
PILAR3 since 2014
(now a very old H/W)



REMOS

the general manager
of the observatory

```
REMOS - The General Manager of the Observatory
Version 1.0.0
Copyright (C) 2008-2010 Remos Observatory
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REMOS is distributed under the terms of the GNU General Public
License, which is available at:
http://www.gnu.org/licenses/gpl-2.0.html
```



```
History : (11/08/2003) First version.  
        : (11/10/2004) Trailing '\n' removed.
```

```
"""
```

```
import REMConstants  
import REMLogEntry  
import REMObjects  
import REMFiles  
import REMUtils  
import sys  
import string  
import os  
import time
```

```
flist = REMFiles.GetLOGList()  
dlist = REMFiles.GetLOGLast()  
for i in range(len(dlist),len(flist)):  
    dlist.append(REMLogEntry.LOGLASTNULL)
```

```
while True:  
    for i in range(len(flist)):  
        drname = string.strip(string.split(flist[i],os.sep)[0])  
        fname = string.strip(string.split(flist[i],os.sep)[1])  
        nentries = REMLogEntry.GetNewLOGData(drname,fname,float(dlist[i]))  
        if len(nentries) > 0:  
            # print drname+os.sep+fname  
            for l in range(len(nentries)):  
                print string.rstrip(nentries[l])  
                dlist[i] = string.split(nentries[l])[0]+os.linesep  
  
        time.sleep(5)           # Wait before sending new LOG entries.
```

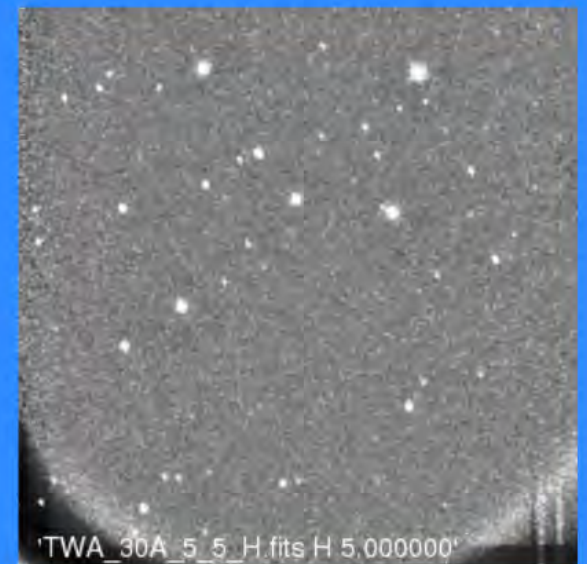
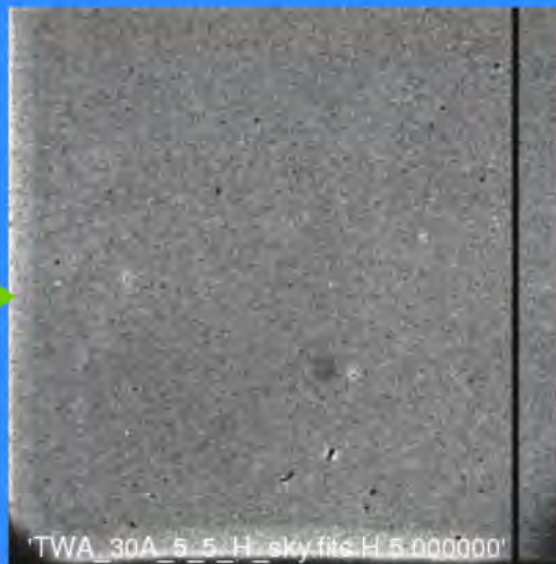
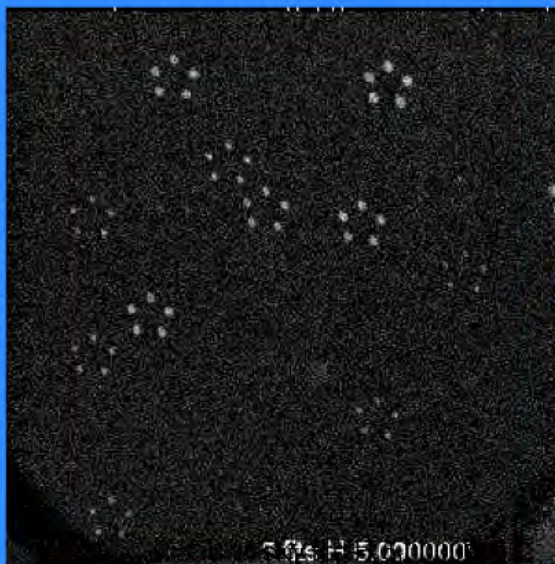
Merate

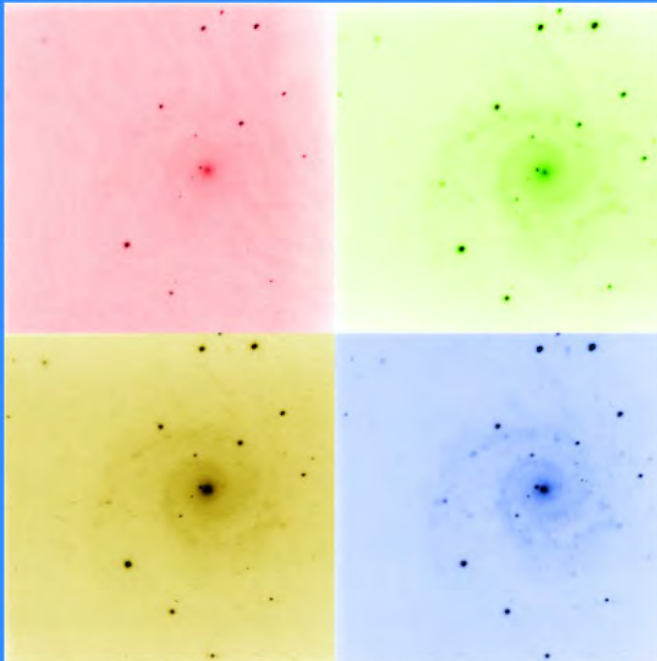
REM website
webcam repository
GIF from the FITS

>> **OB input** <<

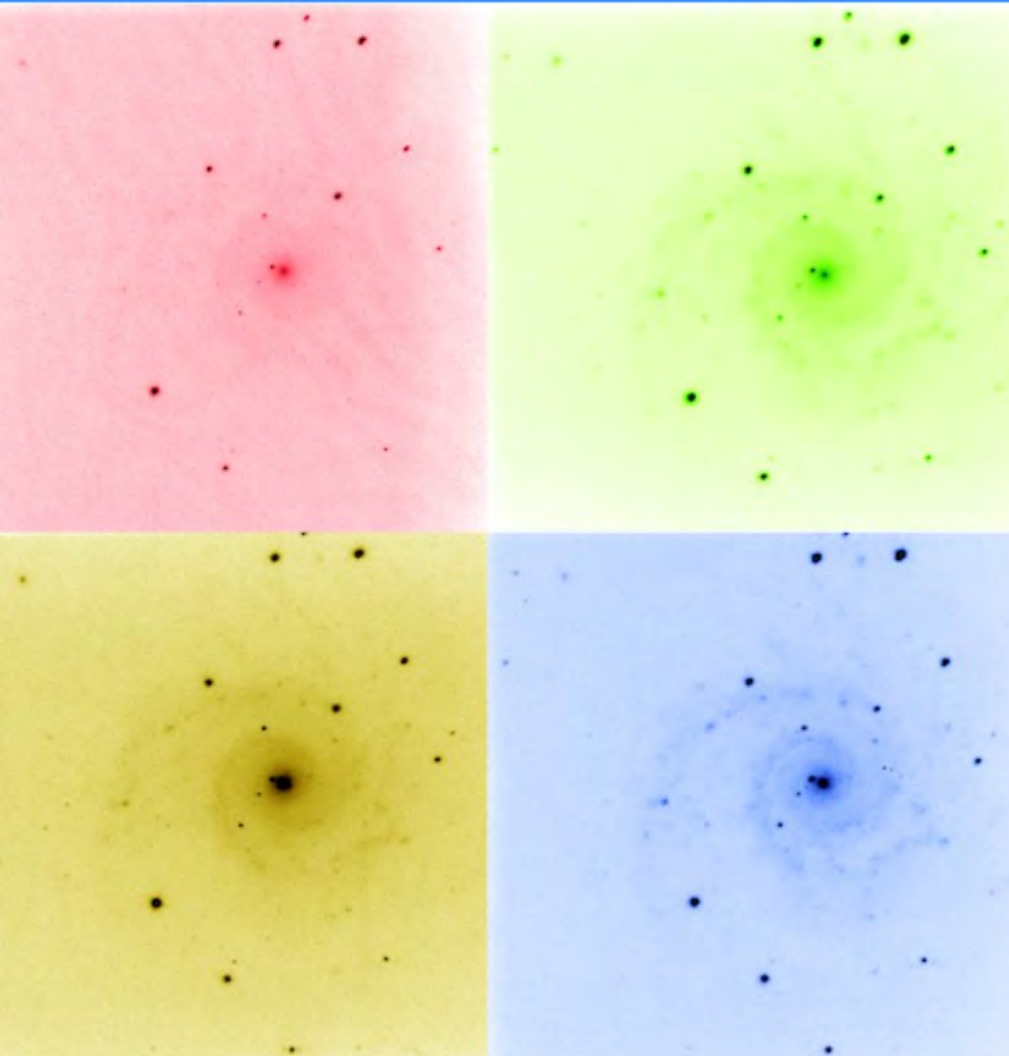
REMIIR

dither wedge: 5 to 1





ROS2

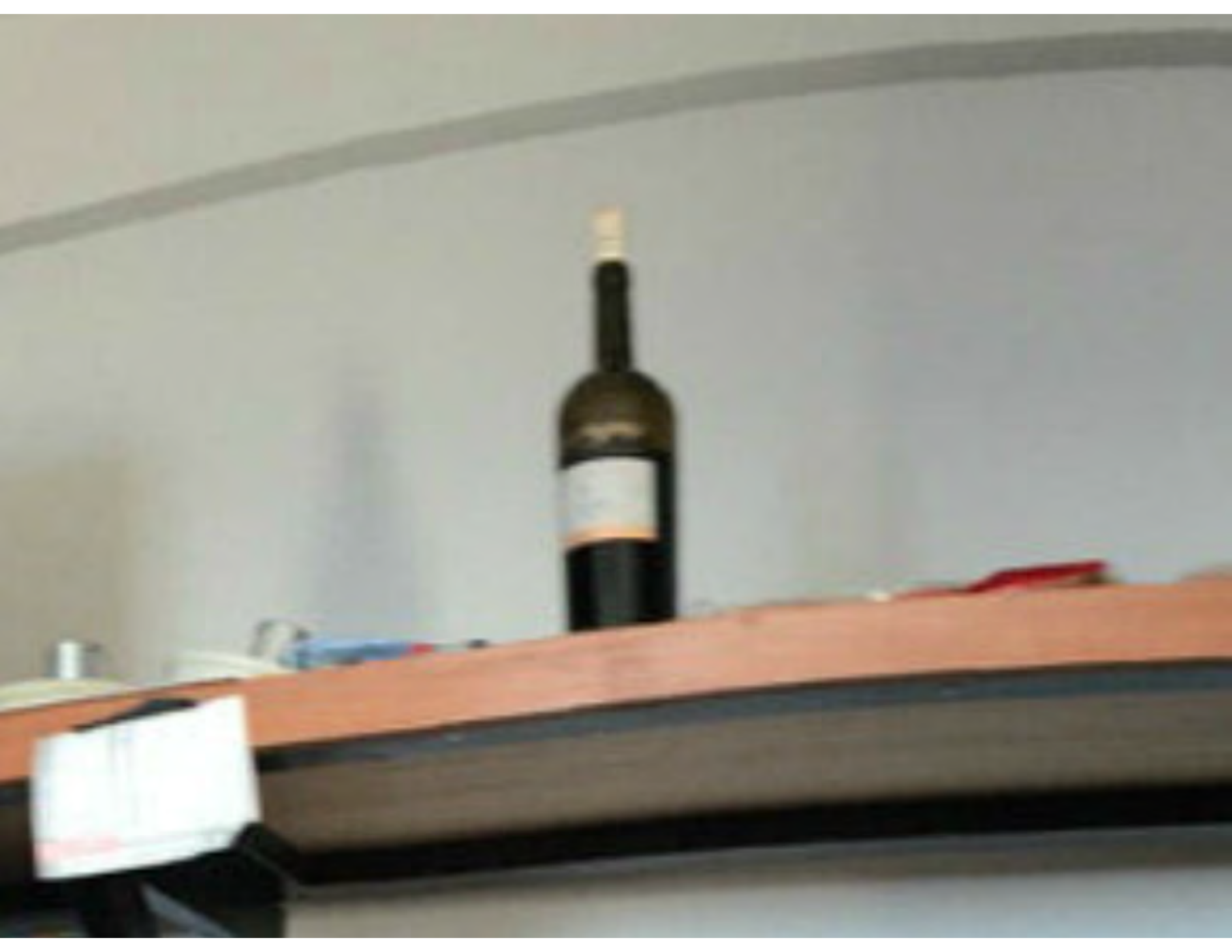


TCS

TAU-TEC control software
PILAR3 since 2014
(now a very old H/W)







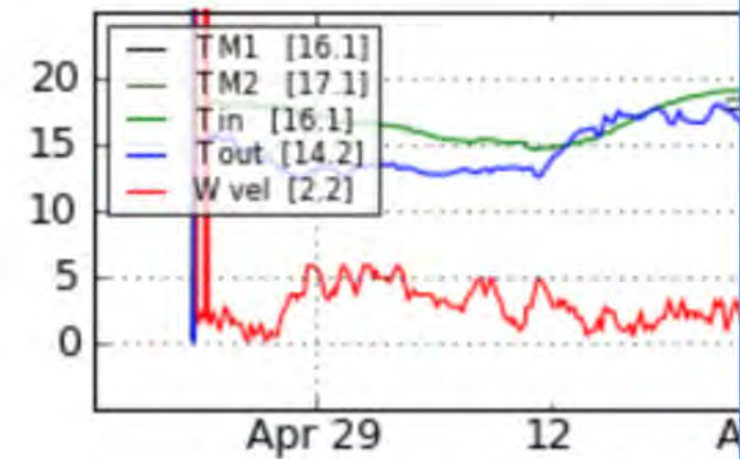
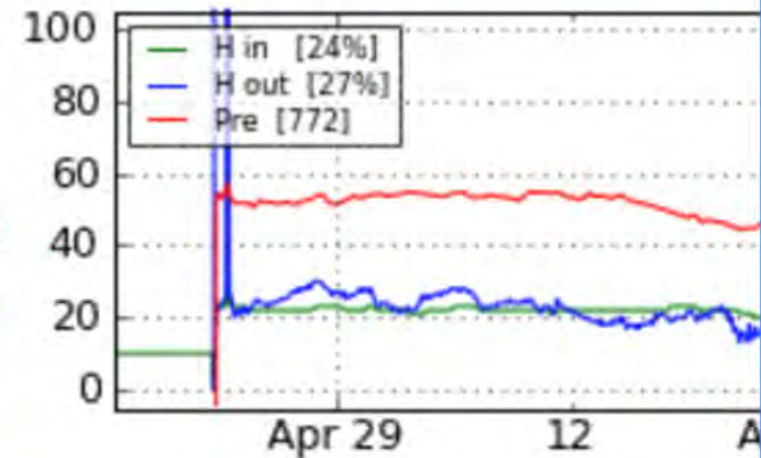


METE

METE
SAFETY

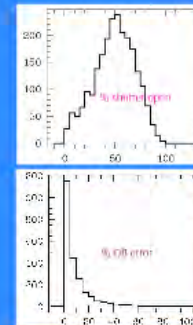
LaSil: ●

Local: ●

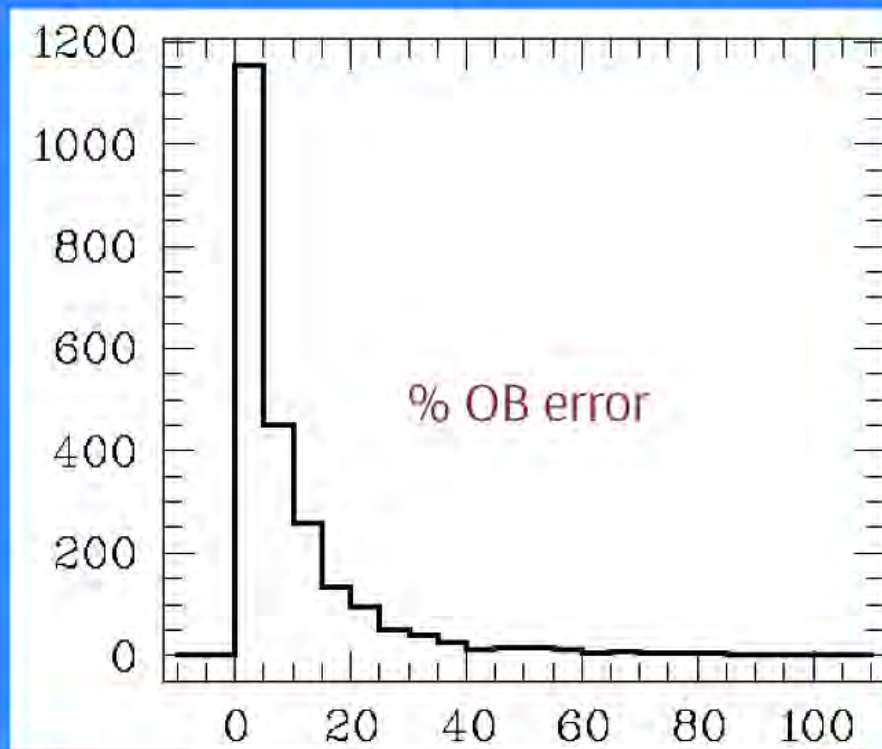
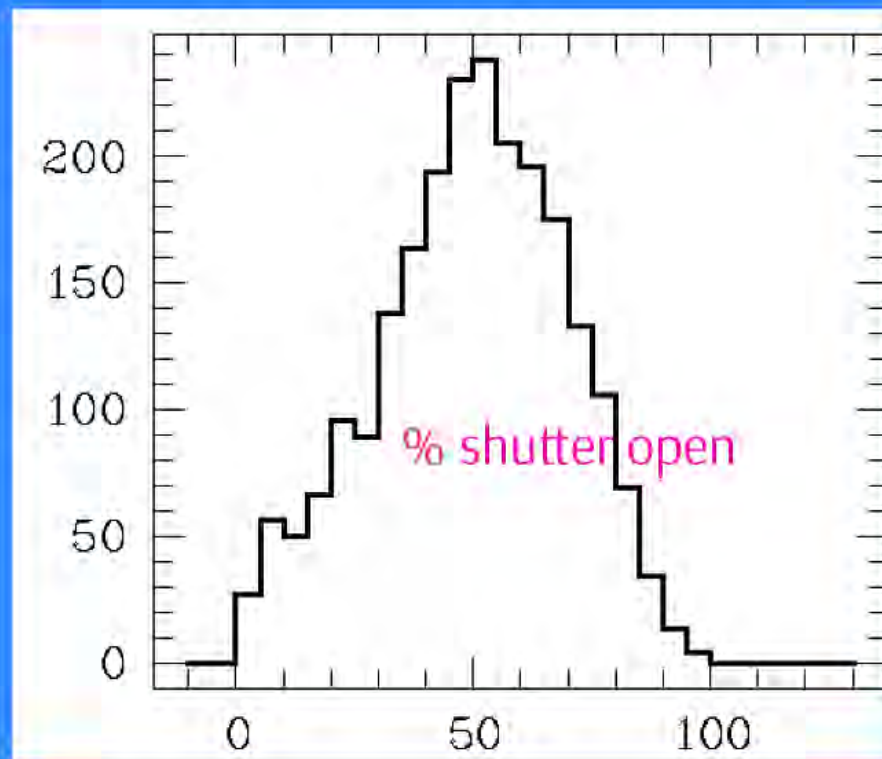


optimized scheduling:

- * after each observation
- * higher airmass
- * grouping, time constrained
- * prioritized targets
- * ToO / GRB rapid response mode



SCHEDULER



services

DOME control PLC

air conditioning

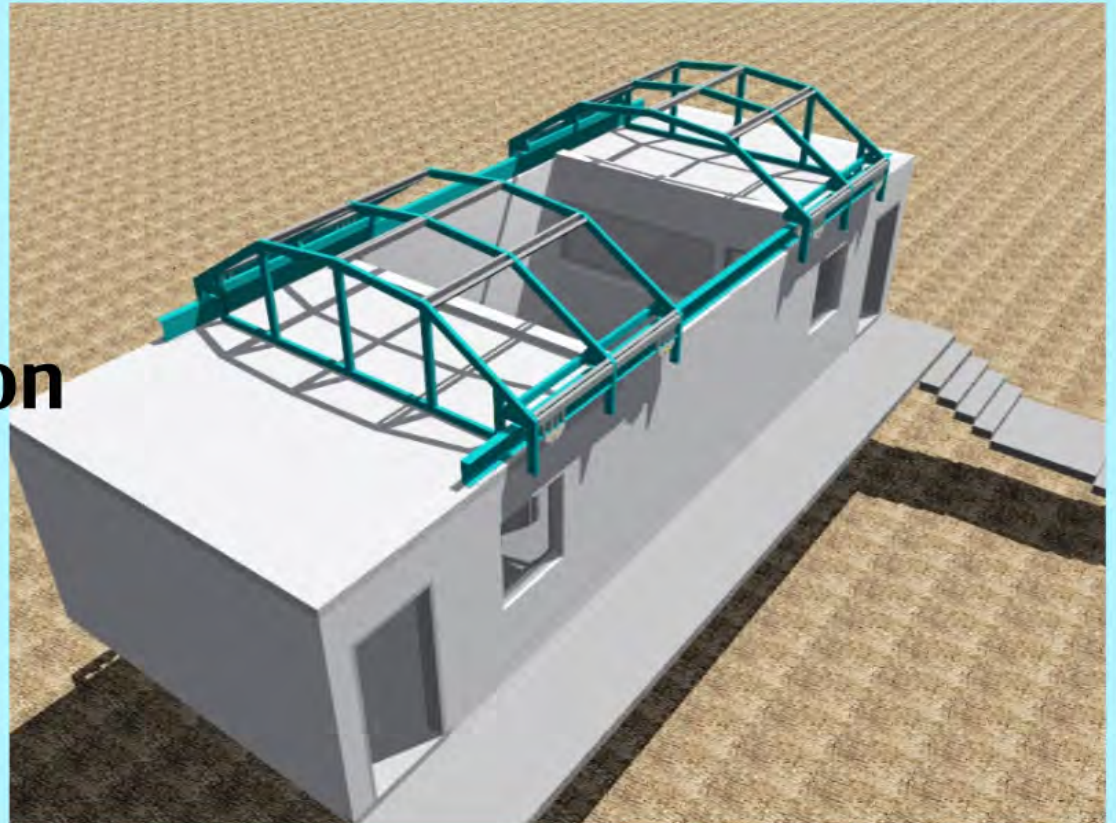
GPS

webcams

GRB GCN connection

LOGS

e-mail



Merate

HELI software
webcam repository
call from the TCS
DB Input

services

DOME control PLC
air conditioning
GPS
webcams
GRB GCN connection
LOGS
e-mail



REMOS

the general manager
of the observatory



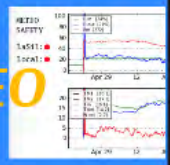
REMIR



optimized scheduling:
* after each observation
* higher priority
* grouping, time constrained
* prioritized targets
* TEO / GRB rapid response mode

SCHEDULER

METEO



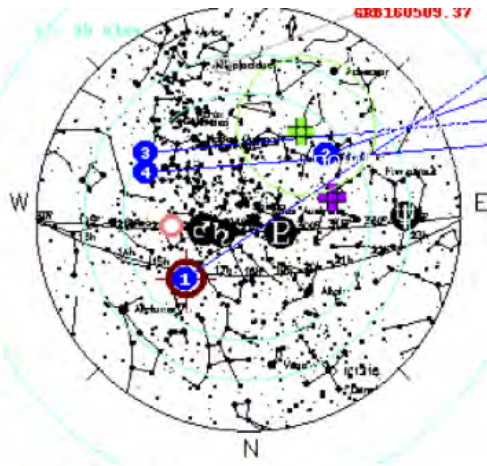
TCS

TAU-TEC control software
PILAR3 since 2014
(now a very old H/W)



ROS2

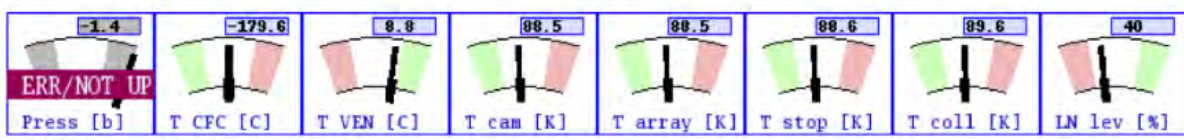
- ALARM
- CFCF
- VENT
- PRES
- LN2L
- TCS
- READY
- NOTACT
- ALERT



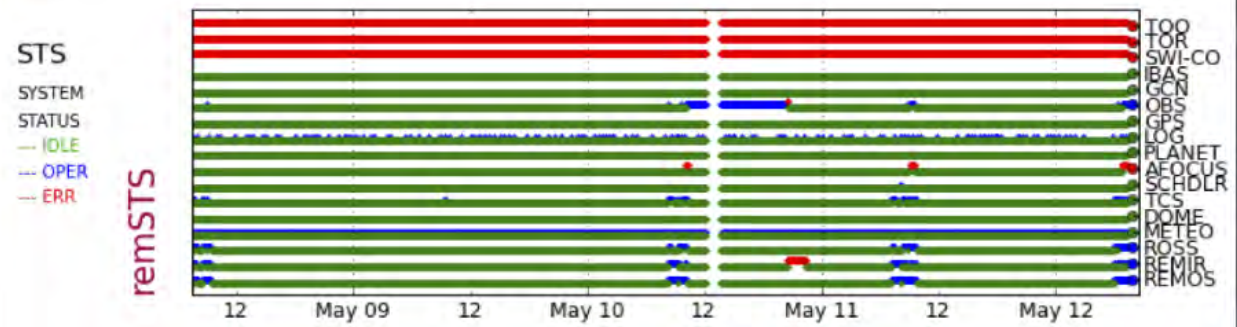
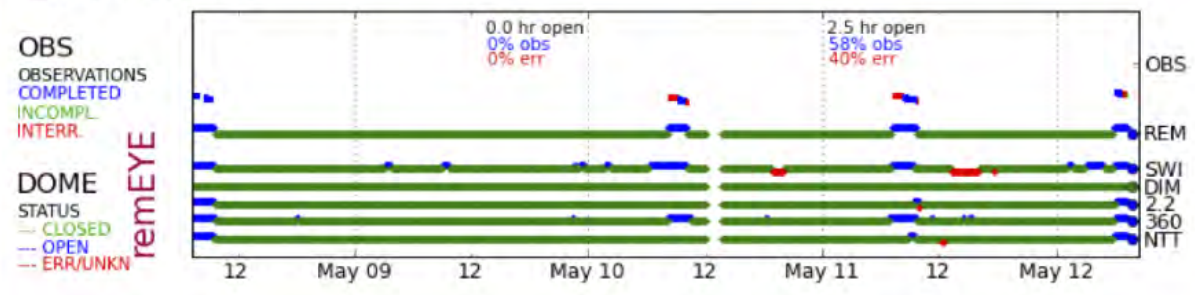
ID	Name	Date	Time	RA	DEC	Mag
1	Focus	MAY 12	06:47	V	J	
2	NGC7213	MAY 12	06:54	V	JHK	
3	ESO323	MAY 12	06:59	V	JHK	
4	TXTFields	MAY 12	07:04	V	H	
4 SKY OBJ (4 TRG SCH, 17 ARC)						

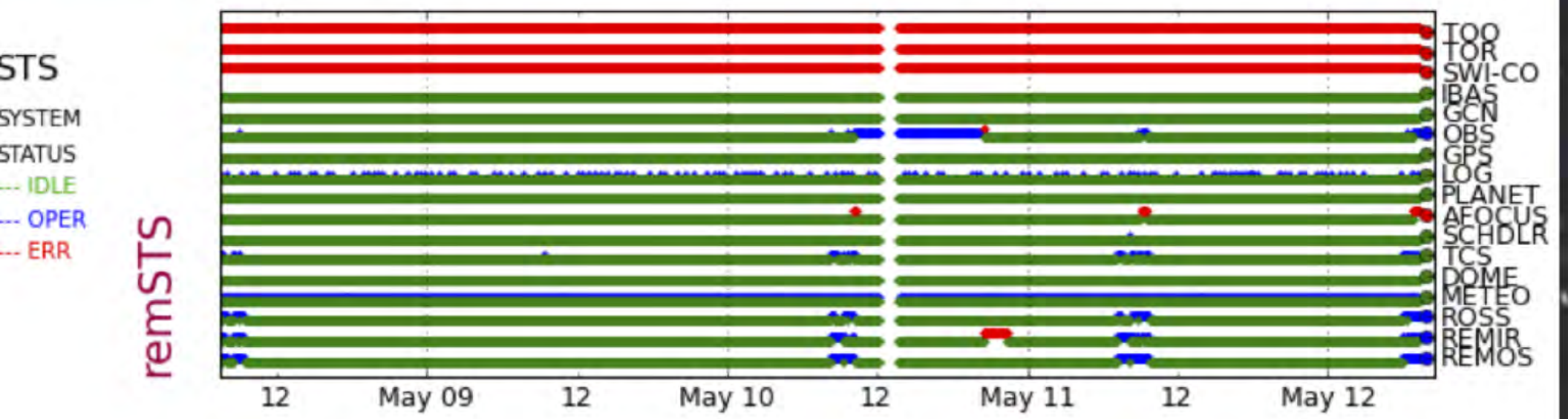
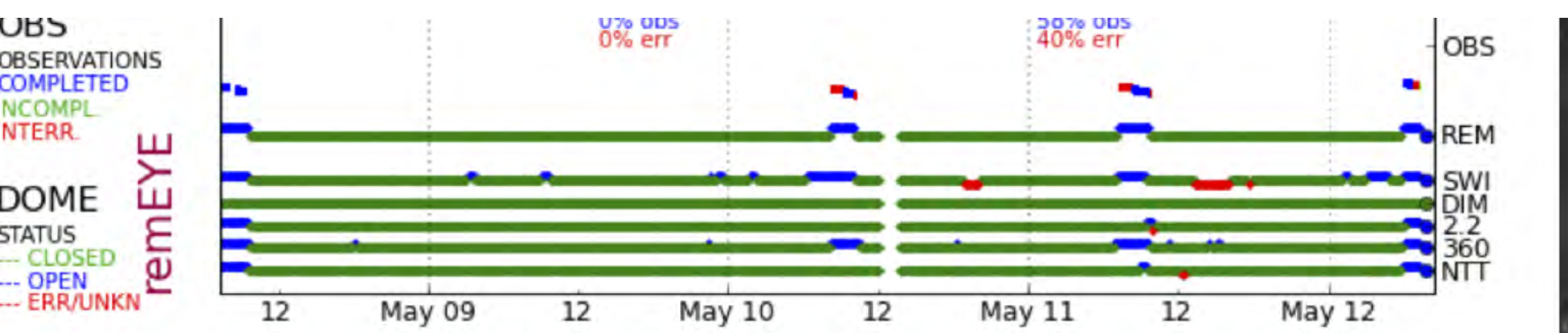
t-REM-ometer

- Sun (antisun)
- REM point
- targets
- GRB
- Agile
- Glast
- Integral
- Swift
- BAT cone



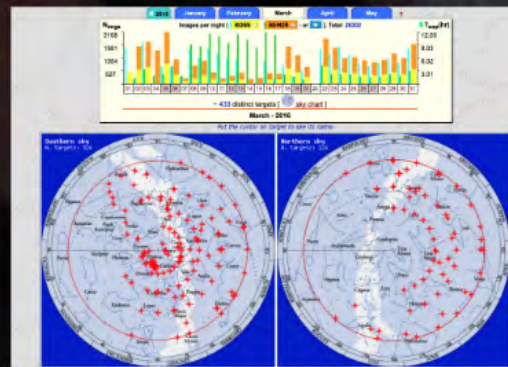
REMIR environment





explore the REM archive

Filename	Object	RA	Dec	uniqueID
IMG20111004051	YTFPulsar	23:00:41.82	-53:31:35.4	176871000
IMG20111006051	YTFPulsar	23:00:41.74	-53:31:35.8	176871000
IMG20111004051	YTFPulsar	23:00:41.40	-53:31:36.8	176871000
IMG20111004051	YTFPulsar	23:00:41.52	-53:30:32.8	176871000
IMG20111004051	YTFPulsar	23:00:41.84	-53:31:35.4	176871000
IMG20111004051	YTFPulsar	23:00:41.74	-53:31:35.4	176871000
IMG20111004051	YTFPulsar	23:00:41.40	-53:31:35.8	176871000
IMG20111004051	YTFPulsar	23:00:41.54	-53:31:31.3	176871000
IMG20111004051	YTFPulsar	23:00:41.62	-53:31:31.3	176871000
IMG20111004051	YTFPulsar	23:00:41.74	-53:31:31.4	176871000
IMG20111004051	YTFPulsar	23:00:41.40	-53:31:31.8	176871000
IMG20111004051	YTFPulsar	23:00:41.52	-53:31:31.3	176871000
IMG20111004051	YTFPulsar	23:00:41.20	-53:31:31.3	176871000
IMG20111004051	YTFPulsar	23:00:41.88	-53:31:31.8	176871000
IMG20111004051	YTFPulsar	23:00:41.38	-53:31:31.2	176871000
IMG20111004051	YTFPulsar	23:00:41.50	-53:31:31.8	176871000
IMG20111004051	YTFPulsar	23:00:41.58	-53:31:38.5	176871000
IMG20111004051	YTFPulsar	23:00:41.88	-53:31:34.7	176871000
IMG20111004051	YTFPulsar	23:00:41.38	-53:31:31.8	176871000
IMG20111004051	YTFPulsar	23:00:41.88	-53:31:31.8	176871000



Select

ALL

where

ImgNight

≥

≤

Order by

Date

↓

 Ascending

Format

LongTab

↓

Coords

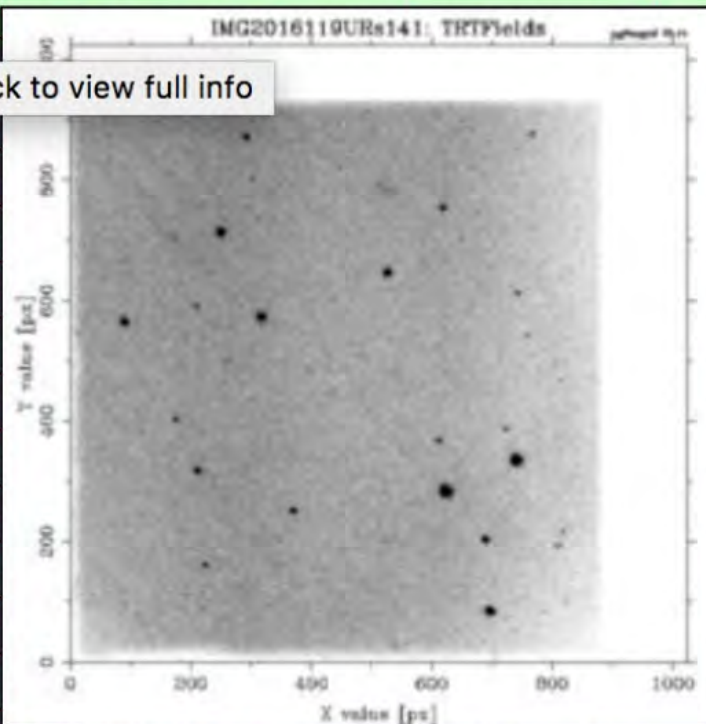
STD string

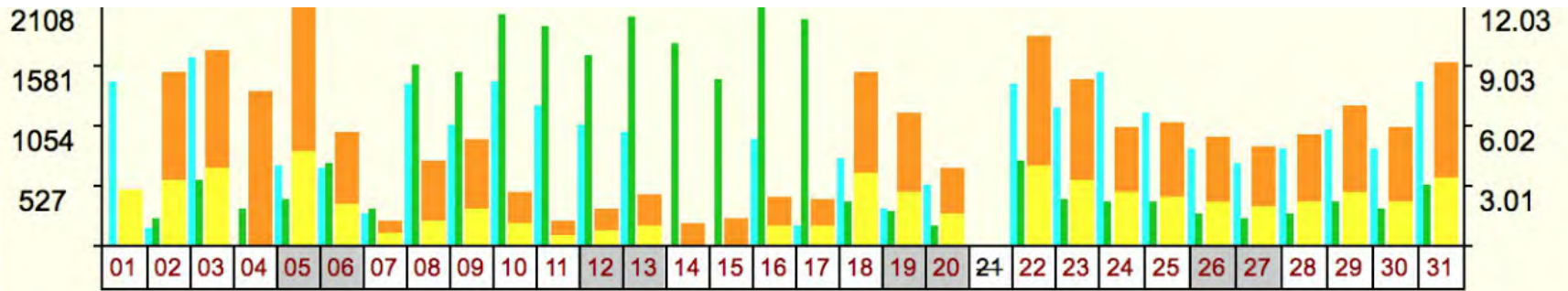
20

imgs

?	Filename ★ ★	Object ★ ★	RA ★ ★	Dec ★ ★	uniqueID ★ ★
	IMG2016119BLs141	TRTFields	23:00:41.62	-53:31:35.4	1766711000
	IMG2016119BRs141	TRTFields	23:00:41.74	-53:31:35.8	1766711000
	IMG2016119ULs141	TRTFields	23:00:41.40	-53:31:34.0	1766711000
	IMG2016119URs141	TRTFields	23:00:41.52	-53:31:32.9	1766711000
	IMG2016119URs141	TRTFields	23:00:41.64	-53:31:35.4	1766710900
	IMG2016119URs141	TRTFields	23:00:41.74	-53:31:35.4	1766710900
	IMG2016119URs141	TRTFields	23:00:41.40	-53:31:33.6	1766710900
	IMG2016119URs141	TRTFields	23:00:41.54	-53:31:32.5	1766710900
	IMG2016119URs141	TRTFields	23:00:41.62	-53:31:35.0	1766710800
	IMG2016119URs141	TRTFields	23:00:41.74	-53:31:35.4	1766710800
	IMG2016119URs141	TRTFields	23:00:41.40	-53:31:33.6	1766710800
	IMG2016119URs141	TRTFields	23:00:41.52	-53:31:32.5	1766710800
	IMG2016119URs141	TRTFields	23:00:41.59	-53:31:35.0	1766710700
	IMG2016119URs141	TRTFields	23:00:41.69	-53:31:35.0	1766710700
	IMG2016119URs141	TRTFields	23:00:41.38	-53:31:33.2	1766710700
	IMG2016119URs141	TRTFields	23:00:41.50	-53:31:32.5	1766710700
	IMG2016119BLs137	TRTFields	23:00:41.59	-53:31:34.7	1766710600
	IMG2016119BRs137	TRTFields	23:00:41.69	-53:31:34.7	1766710600
	IMG2016119ULs137	TRTFields	23:00:41.38	-53:31:32.9	1766710600
	IMG2016119URs137	TRTFields	23:00:41.50	-53:31:31.8	1766710600

Click to view full info

Selected **2665209** entries, shown 1 - 20

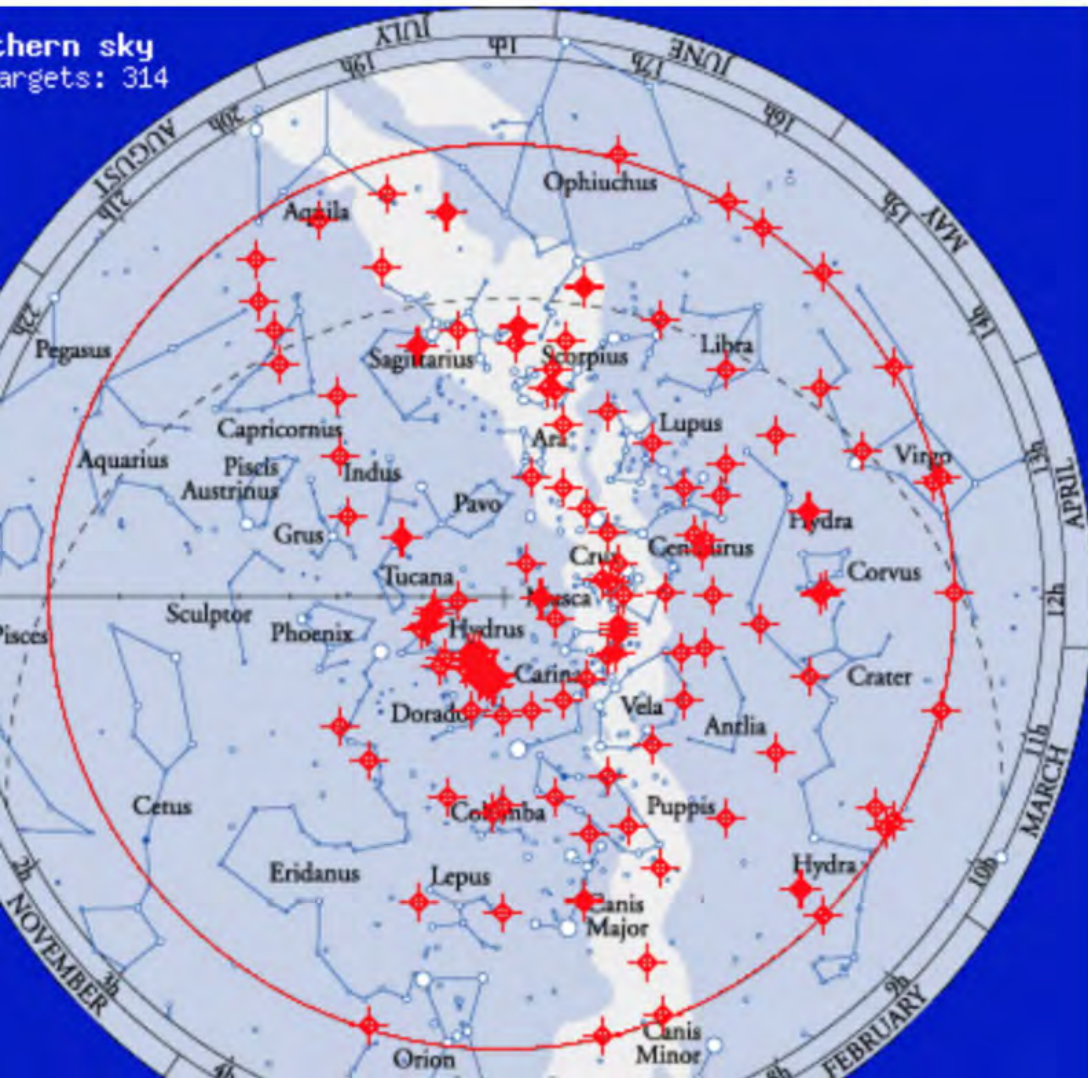


~ 433 distinct targets [ [sky chart](#)]

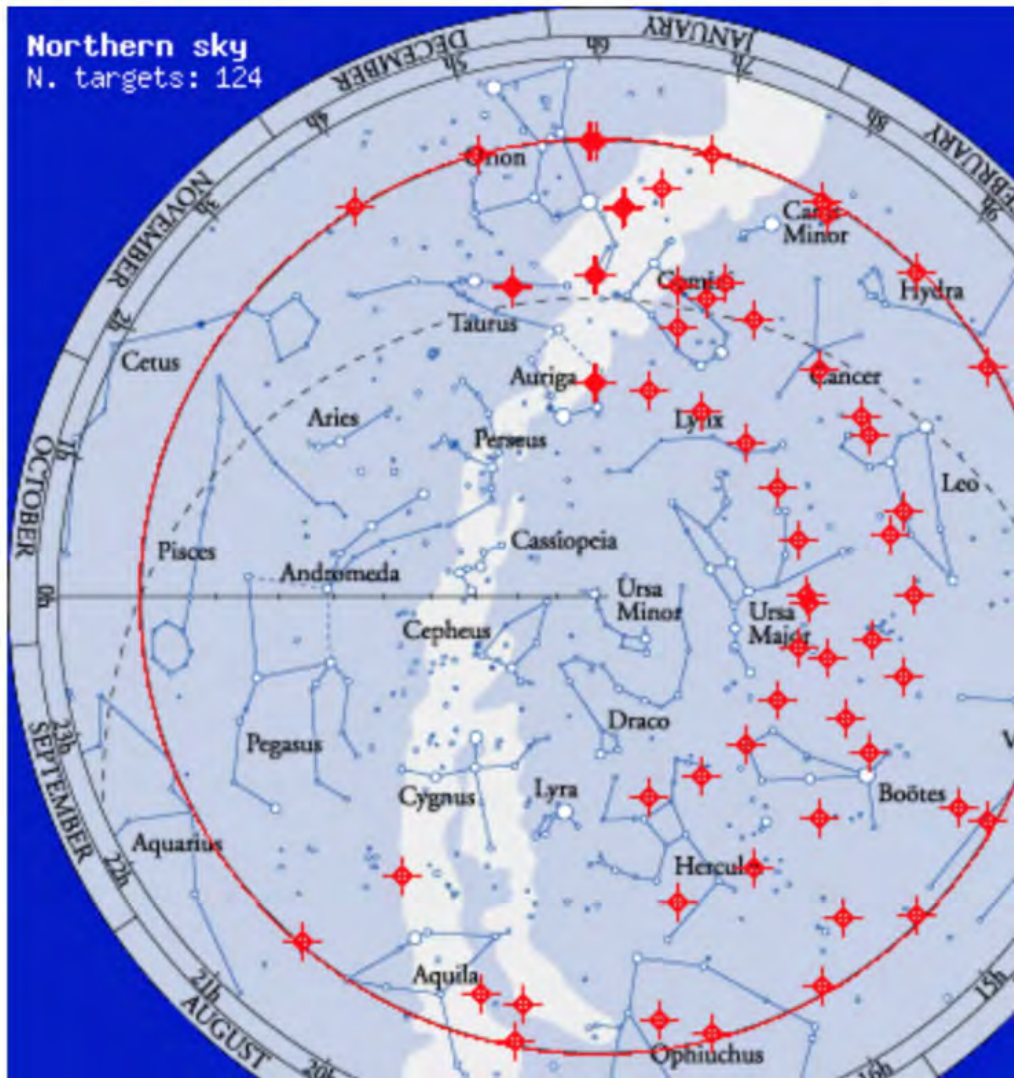
March - 2016

Put the cursor on target to see its name.

Southern sky
Targets: 314



Northern sky
N. targets: 124



BIG CHANGES

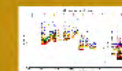
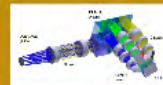
from cryocooler to CFC

Stirling cryocooler was failing too much, we made a deal with ESO: two cryos for one CFC (by JLL, then already used in Harps)



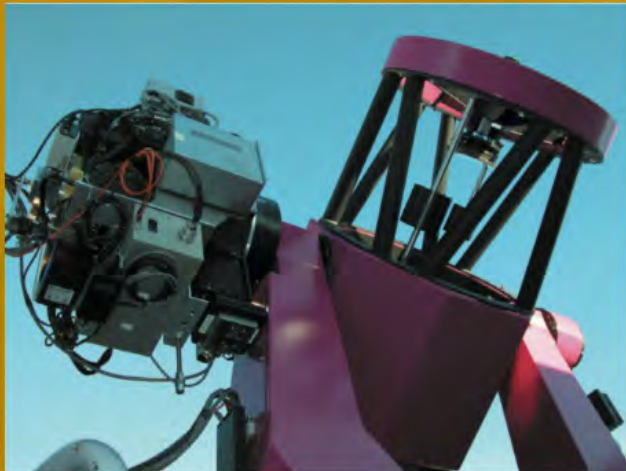
from ROSS to ROS2

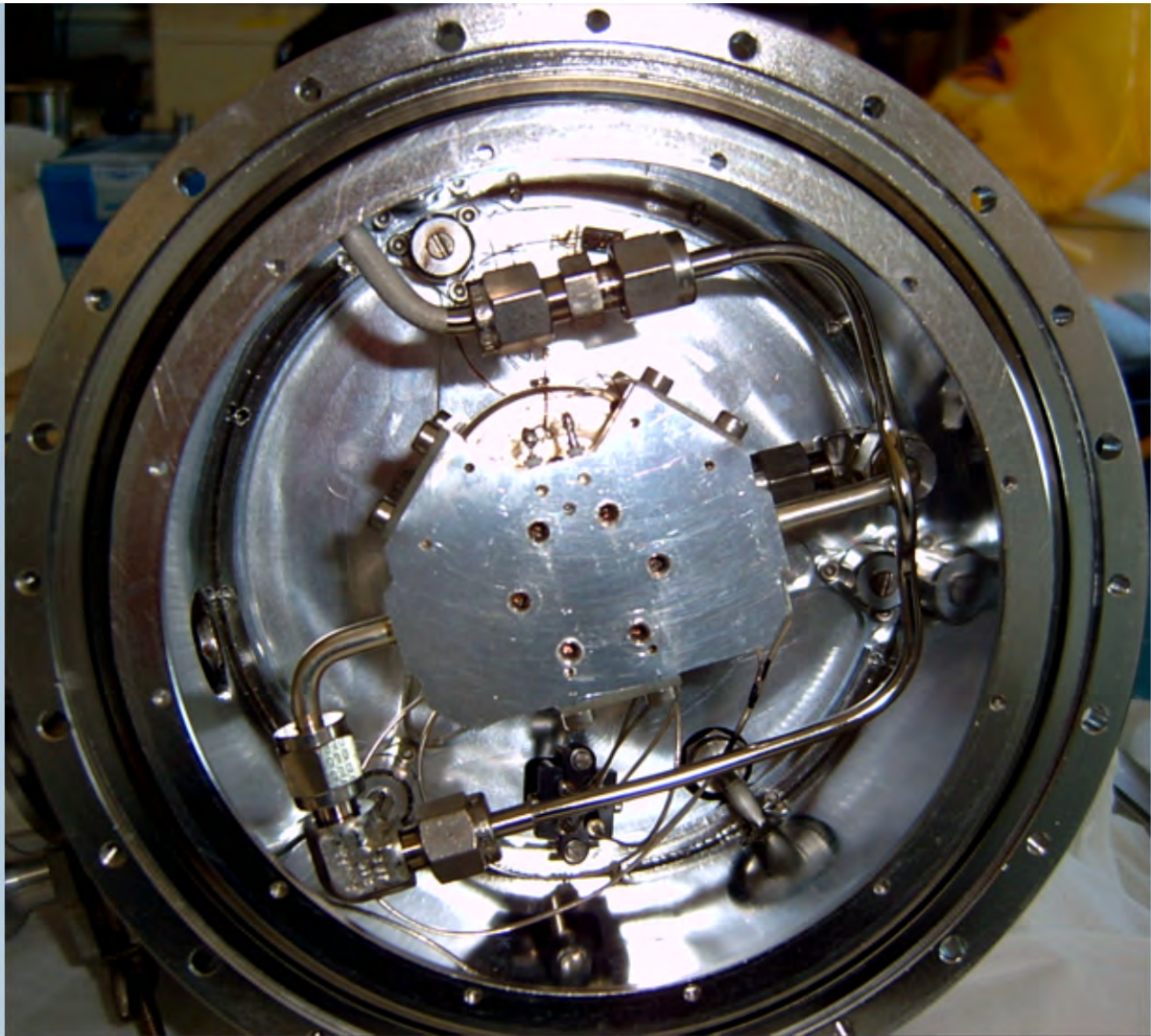
quality of visible images was not really great, and we decided to build a new one incorporating a dichroic design to obtain 4 channels simultaneously: g, r, i, z



from cryocooler to CFC

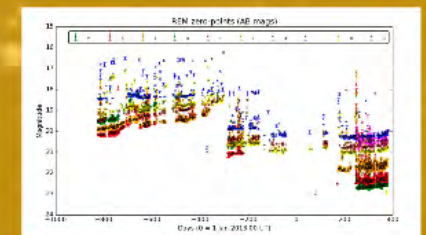
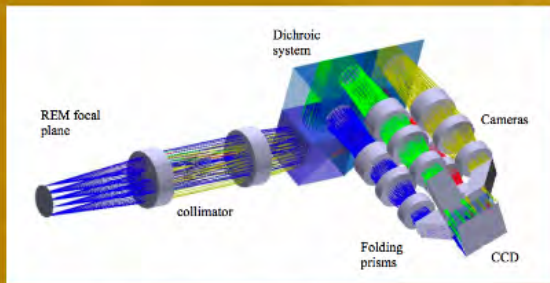
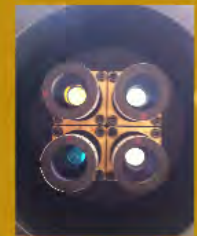
Stirling cryocooler was failing too much, we made a deal with ESO: two cryos for one CFC (by JLL, then already used in Harps)

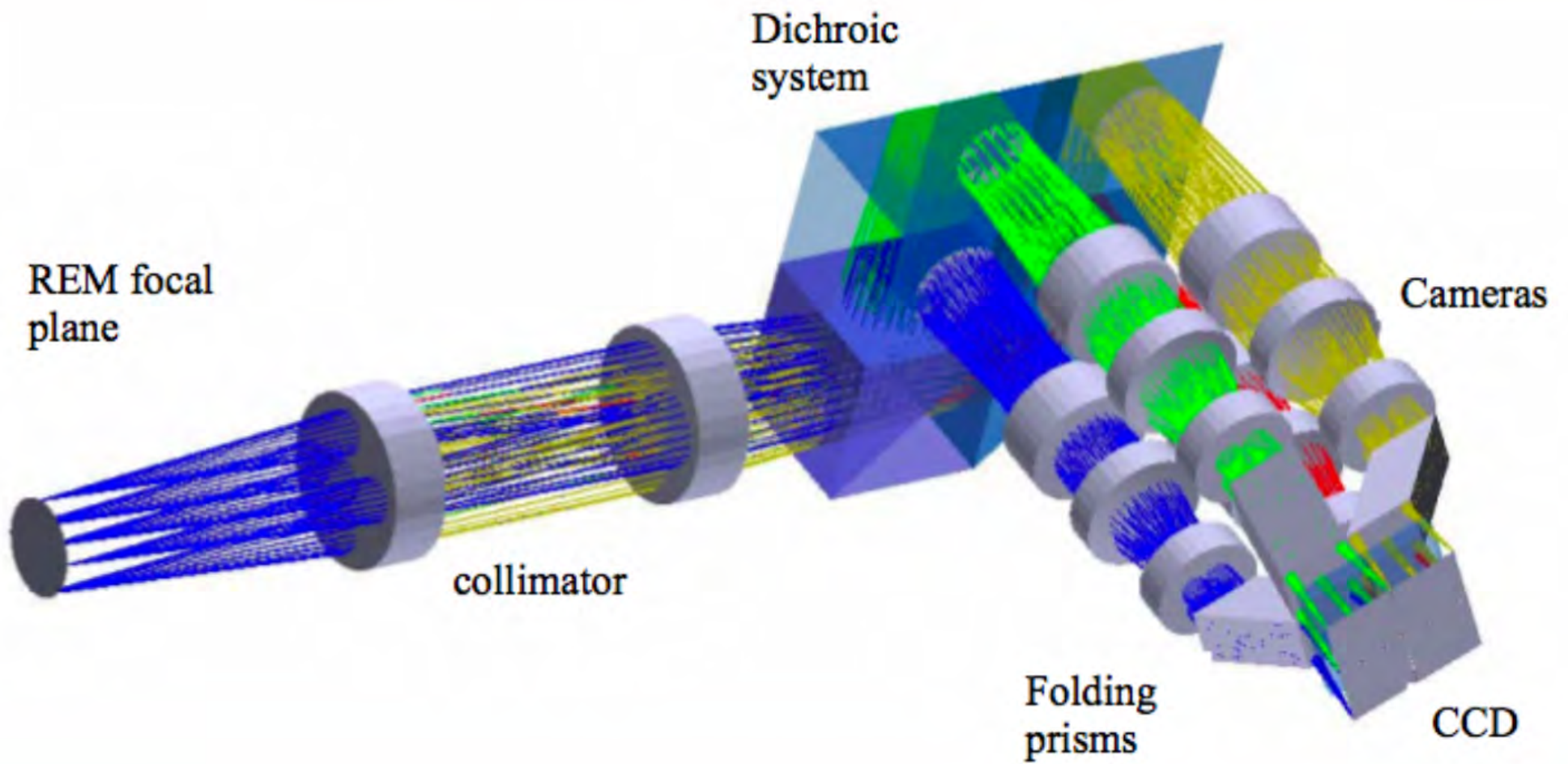




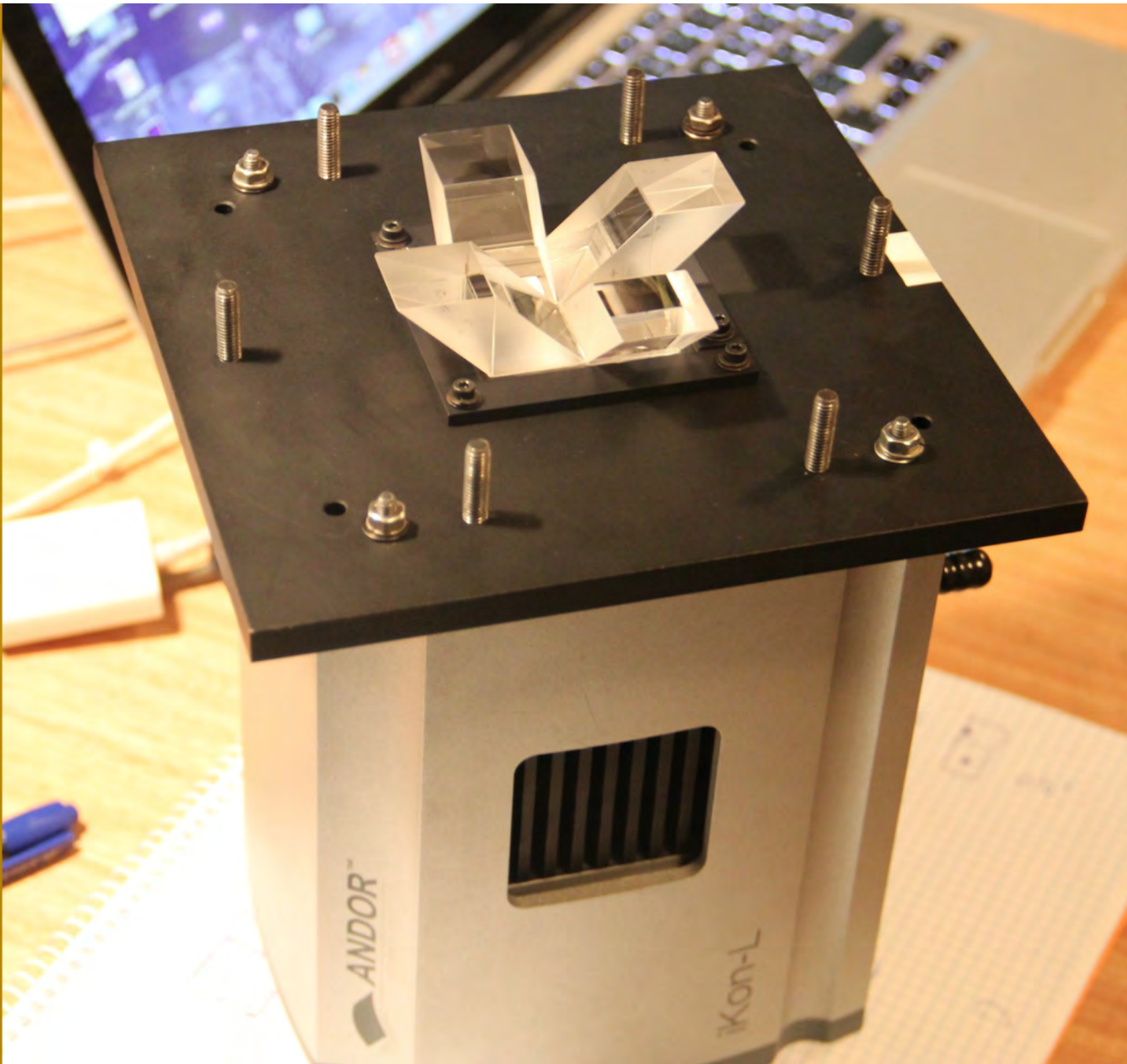
from ROSS to ROS2

quality of visible images was not really great, and we decided to build a new one incorporating a dichroic design to obtain 4 channels simultaneously: g, r, i, z

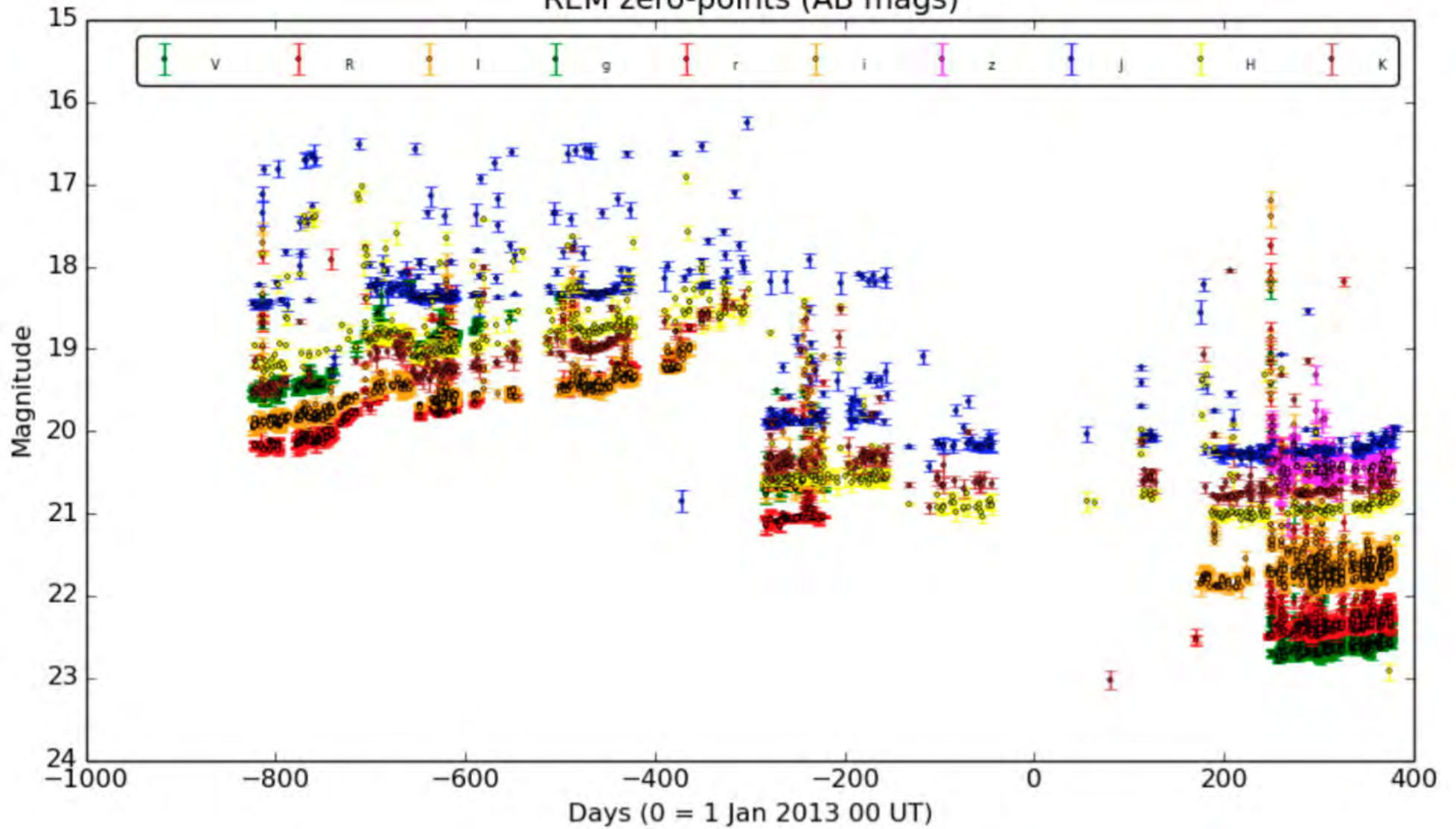








REM zero-points (AB mags)



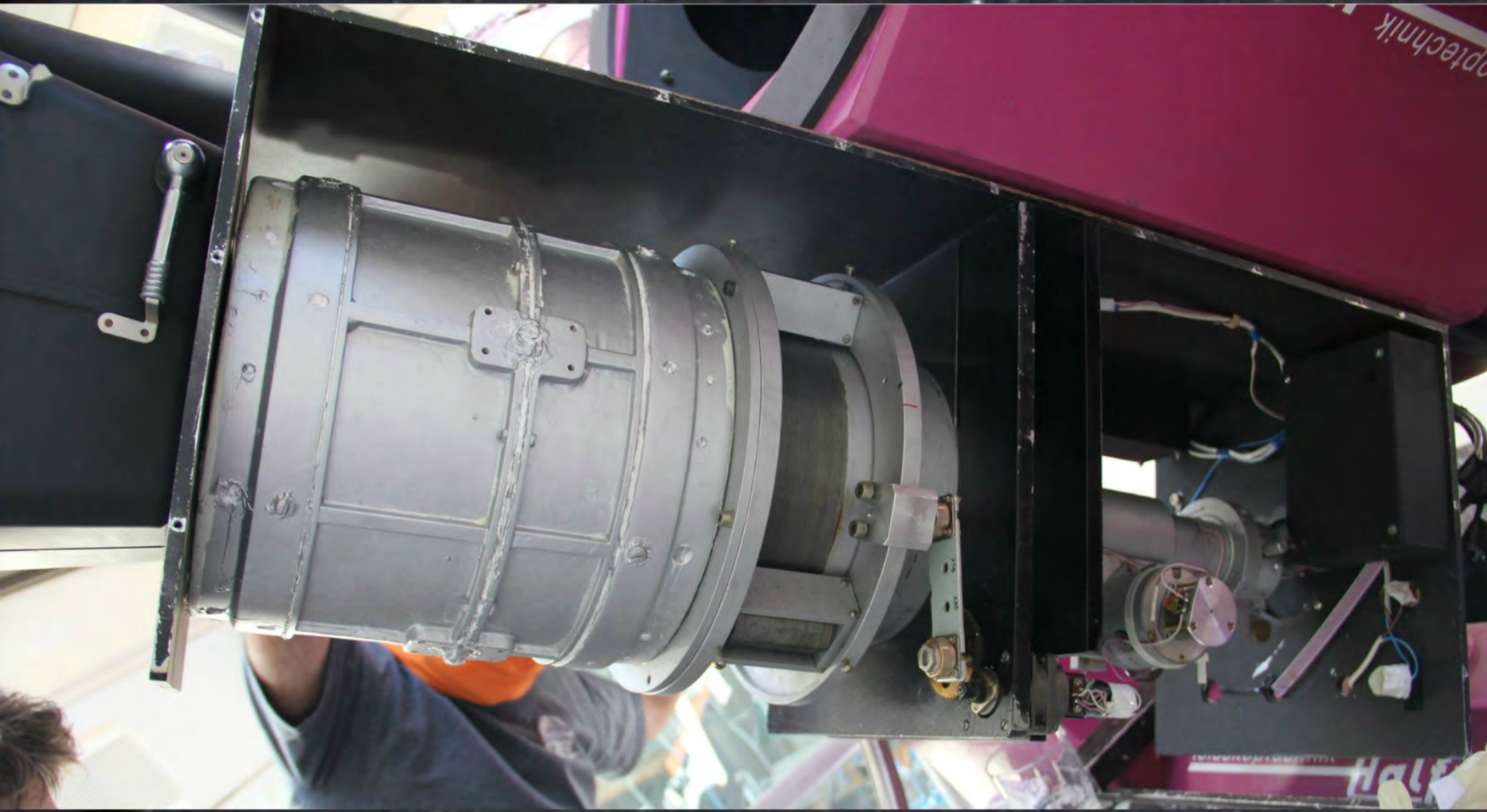
A special, Russian, add-on to catch transients
when they happen

* 30° FoV

* 7.5 images/sec (0.13", a movie) to 10 mag



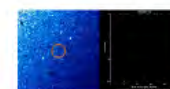
TORTORA



optechnik

Haupt



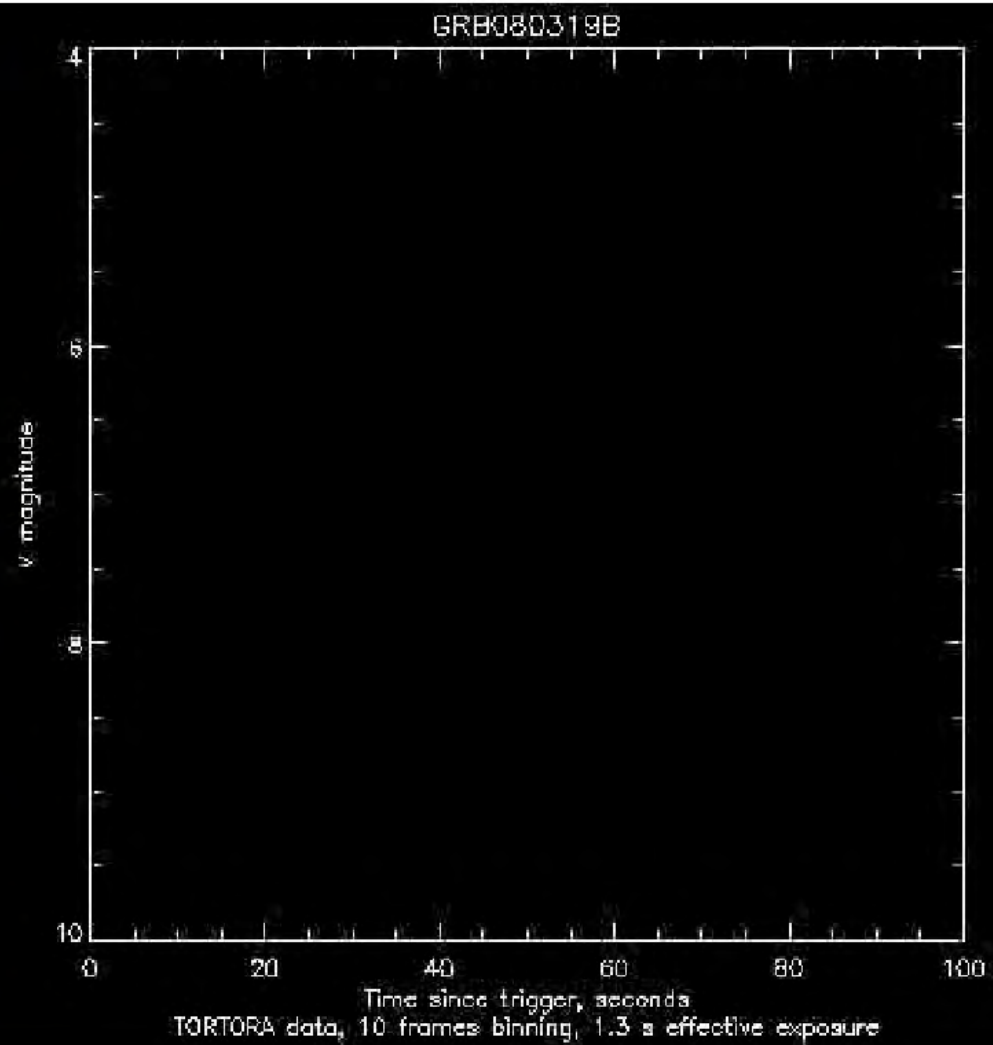


Broadband observations of the naked-eye γ -ray burst GRB 080319B

J. L. Racusin¹, S. V. Karpov², M. Sokolowski³, J. Granot⁴, X. F. Wu^{1,5}, V. Pal'shin⁶, S. Covino⁷, A. J. van der Horst⁸, S. R. Oates⁹, P. Schady⁹, R. J. Smith¹⁰, J. Cummings¹¹, R. L. C. Starling¹², L. W. Piotrowski¹³, B. Zhang¹⁴, P. A. Evans¹², S. T. Holland^{15,16,17}, K. Malek¹⁸, M. T. Page⁹, L. Vetere¹, R. Margutti¹⁹, C. Guidorzi^{7,10}, A. P. Kamble²⁰, P. A. Curran²⁰, A. Beardmore¹², C. Kouveliotou²¹, L. Mankiewicz¹⁸, A. Melandri¹⁰, P. T. O'Brien¹², K. L. Page¹², T. Piran²², N. R. Tanvir¹², G. Wrochna³, R. L. Aptekar⁶, S. Barthelmy¹¹, C. Bartolini²³, G. M. Beskin², S. Bondar²⁴, M. Bremer²⁵, S. Campana⁷, A. Castro-Tirado²⁶, A. Cucchiara¹, M. Cwiok¹³, P. D'Avanzo⁷, V. D'Elia²⁷, M. Della Valle^{28,29}, A. de Ugarte Postigo³⁰, W. Dominik¹³, A. Falcone¹, F. Fierro²⁷, D. B. Fox¹, D. D. Frederike⁶, A. S. Fruchter³¹, D. Fugazza⁷

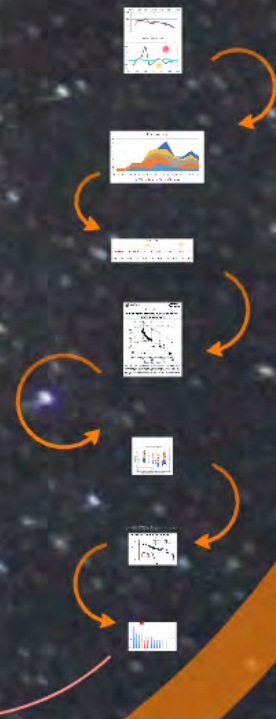
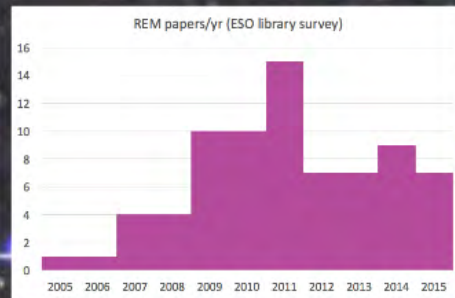
Table 1 | Observations of GRB 080319B

Facility	Epoch*
Swift-BAT	−120 to 182
Konus-Wind	−2 to 230
Swift-XRT	67 to 2.5×10^6
'Pi of the Sky'	−1,380 to 468
TORTORA	−20 to 97
Swift-UVOT	$68-10^6$
REM	51-2,070
Liverpool Telescope	$(1.8-2.5) \times 10^3$
Faulkes Telescope North	$(2.5-20.5) \times 10^4$



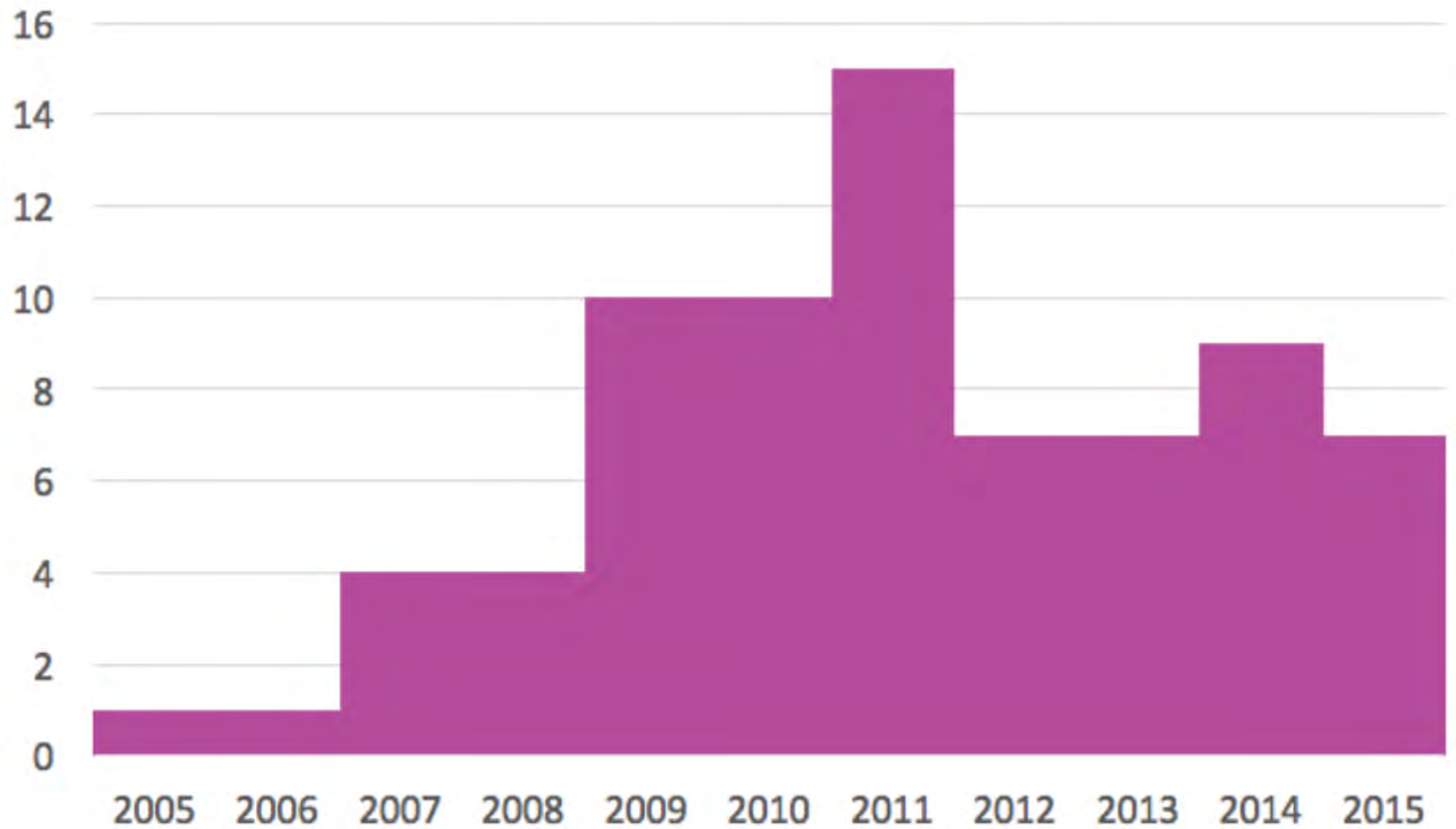
in the press

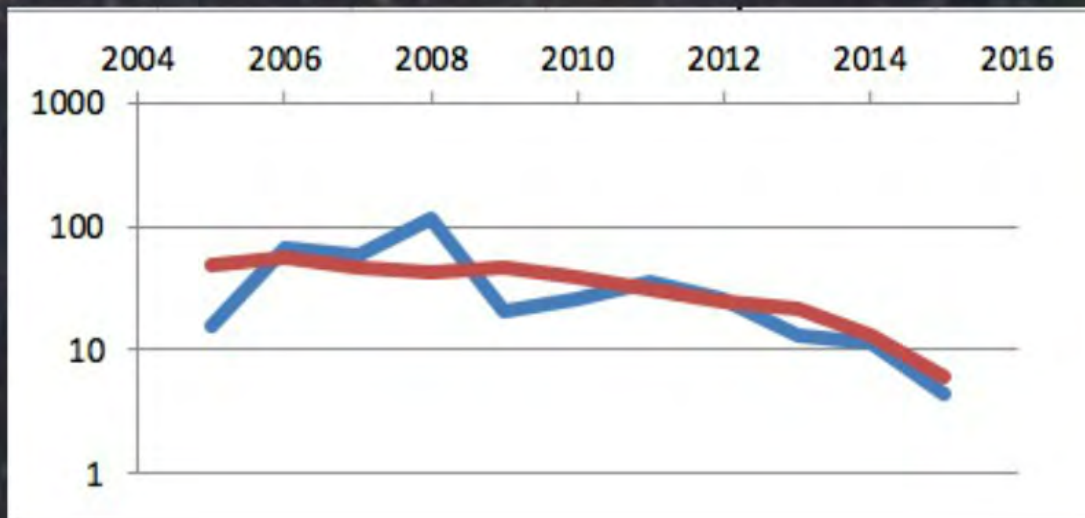
ESO library is monitoring, even if not publishing, all telescope publications.



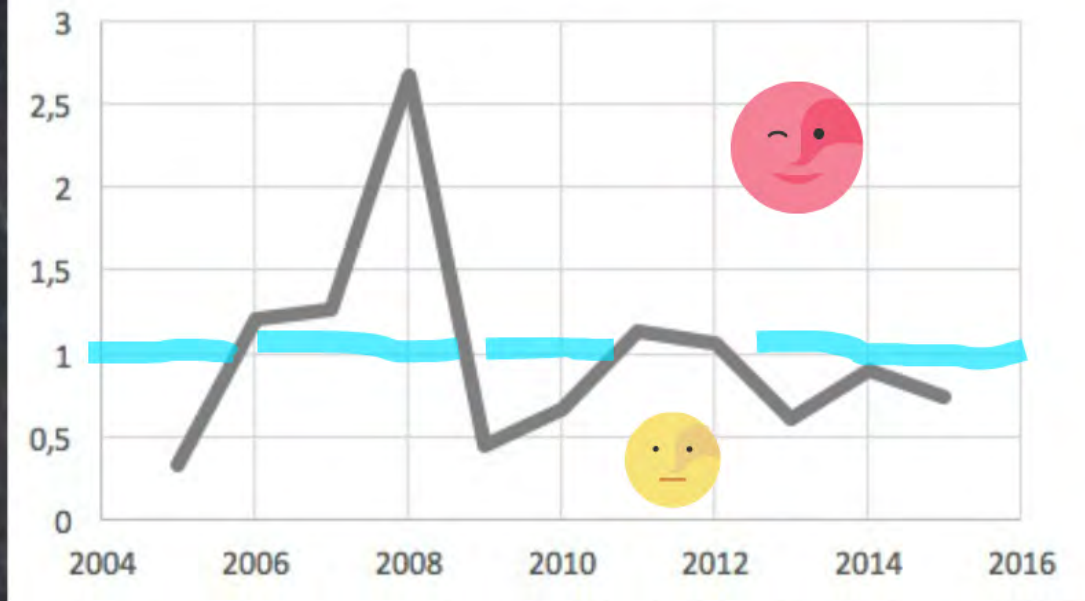
too f

REM papers/yr (ESO library survey)

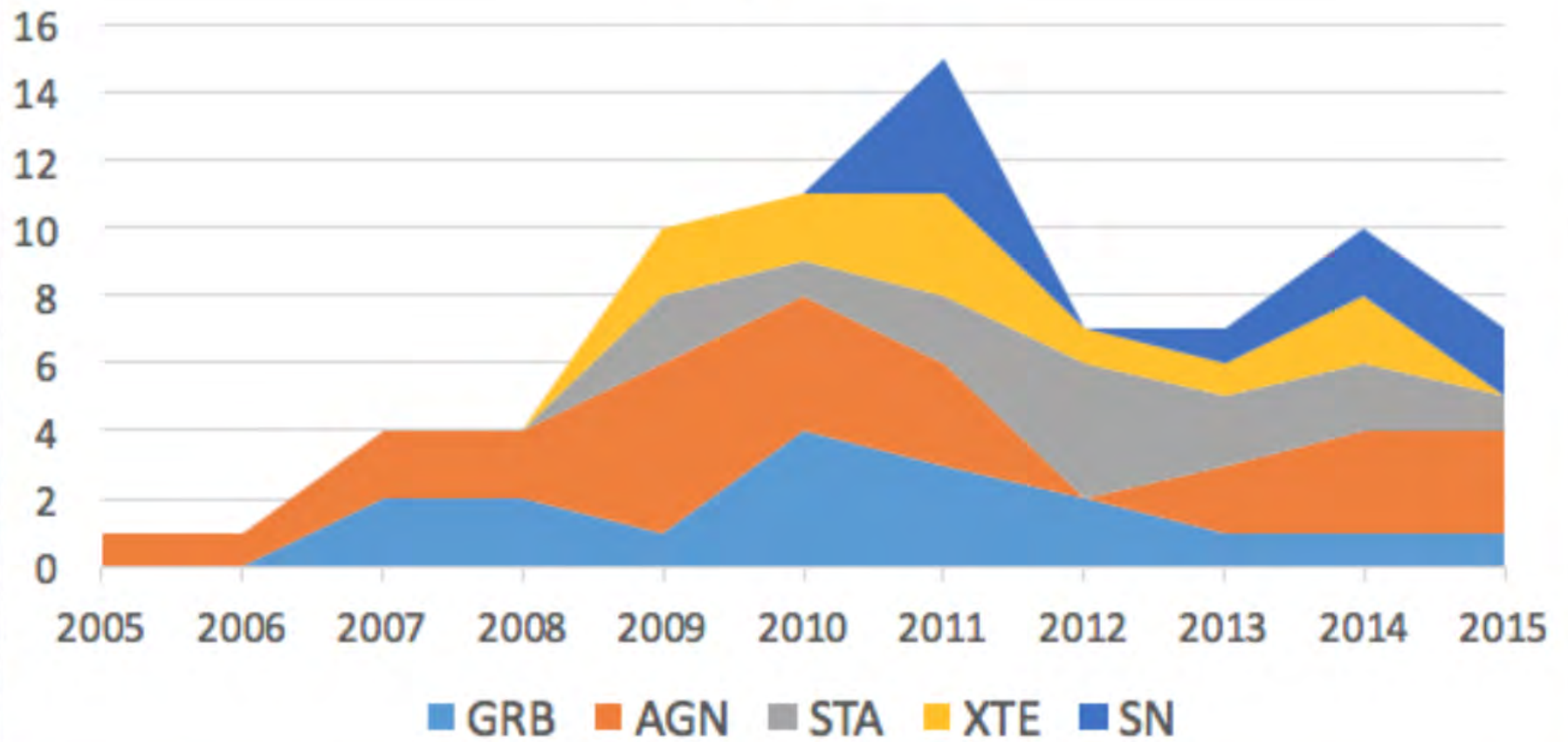


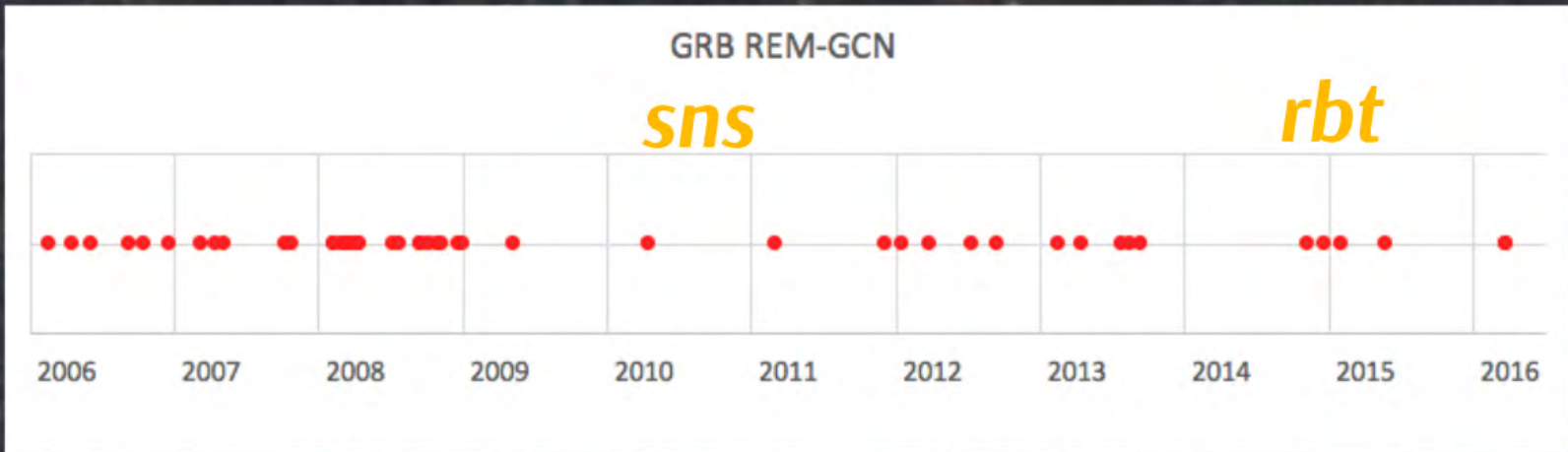


REM/ESO citations



REM paper class





LETTER TO THE EDITOR

**REM observations of GRB 060418 and GRB 060607A: the onset
of the afterglow and the initial fireball
Lorentz factor determination***

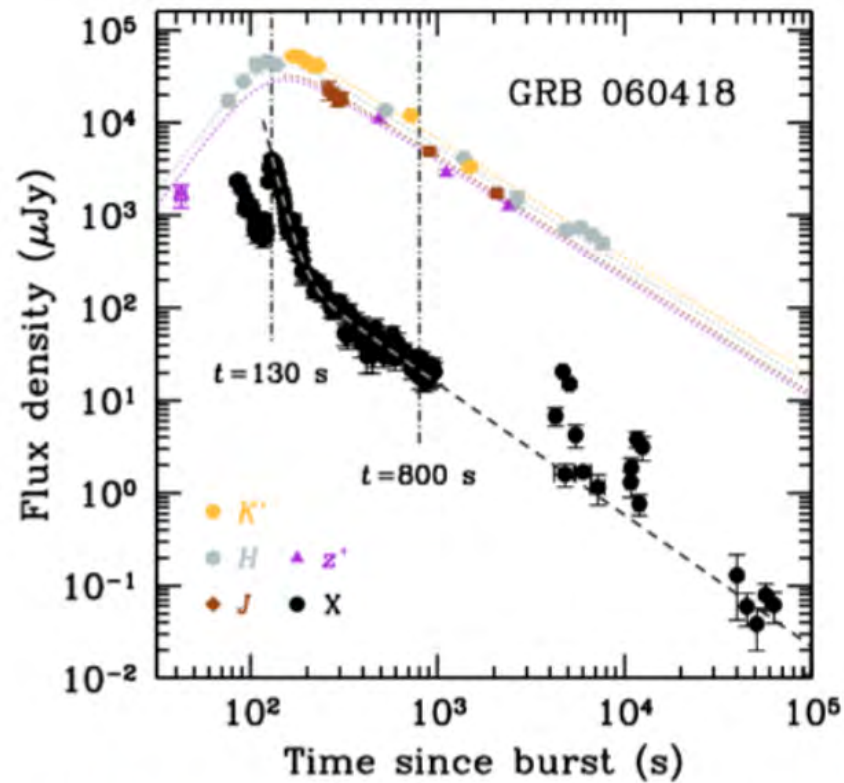
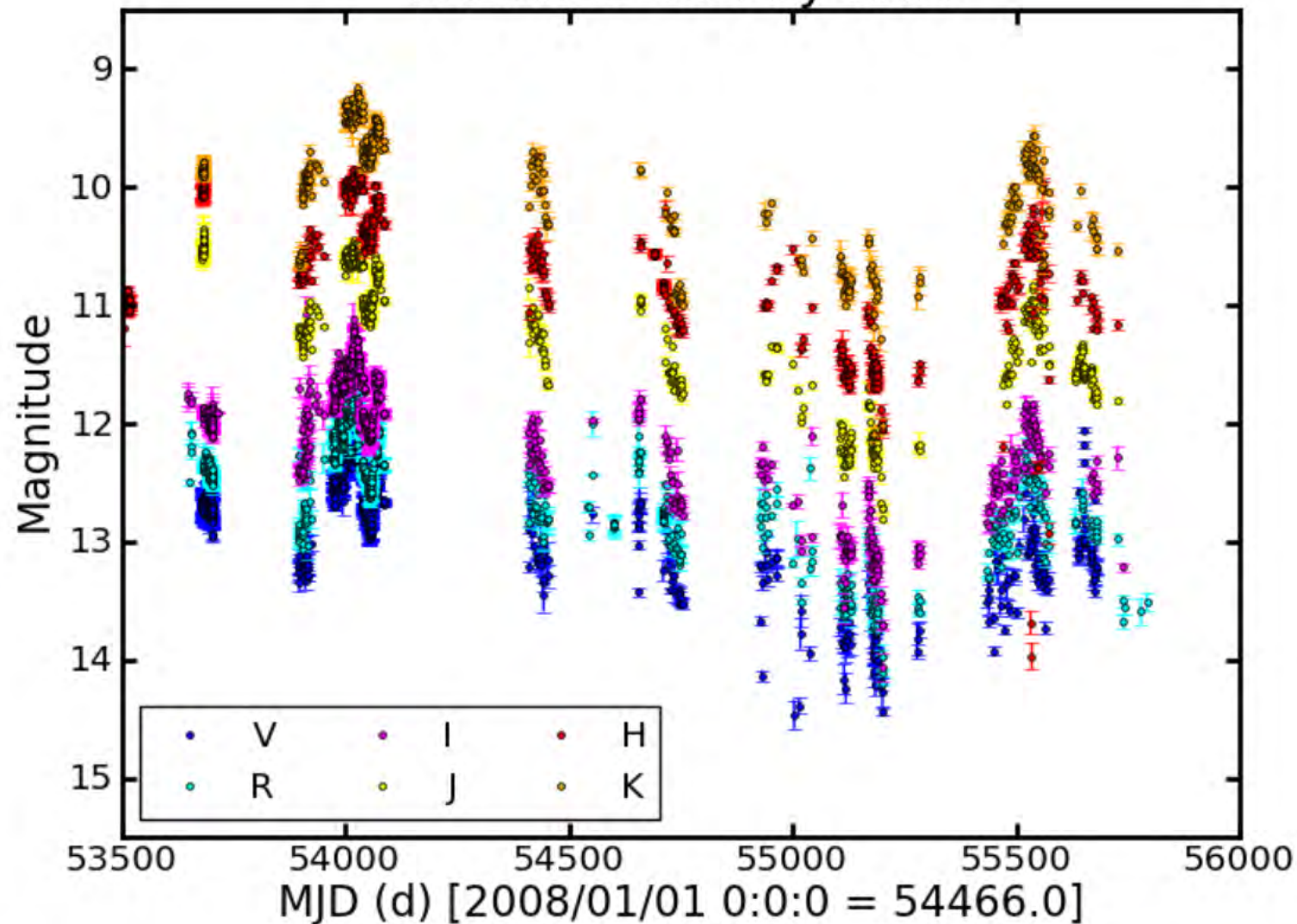


Fig. 1. NIR and X-ray light curves of GRB 060418. The dotted lines show the models of the NIR data using the smoothly broken power law (see Sect. 3.1), while the dashed line shows the best-fit to the X-ray data. The vertical lines mark the epochs at which we computed the SED (Fig. 3).

QUASI-PERIODICITIES OF THE BL LACERTAE OBJECT PKS 2155–304

A. SANDRINELLI^{1,2,3}, S. COVINO², AND A. TREVES^{1,2,3}¹ Università degli Studi dell' Insubria, Via Valleggio 11, I-22100 Como, Italy; asandrinelli@yahoo.it

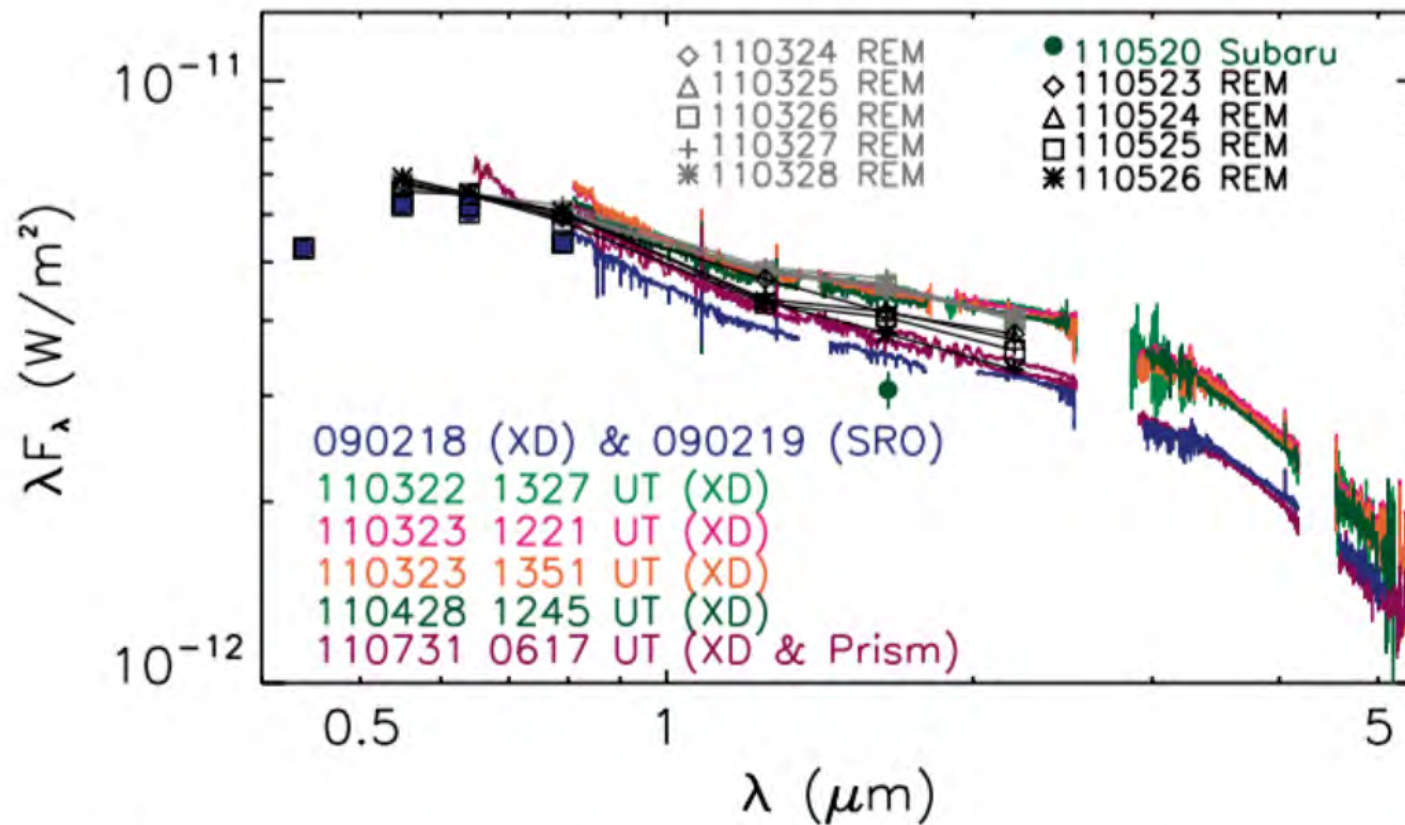
PKS2155-304 by REM

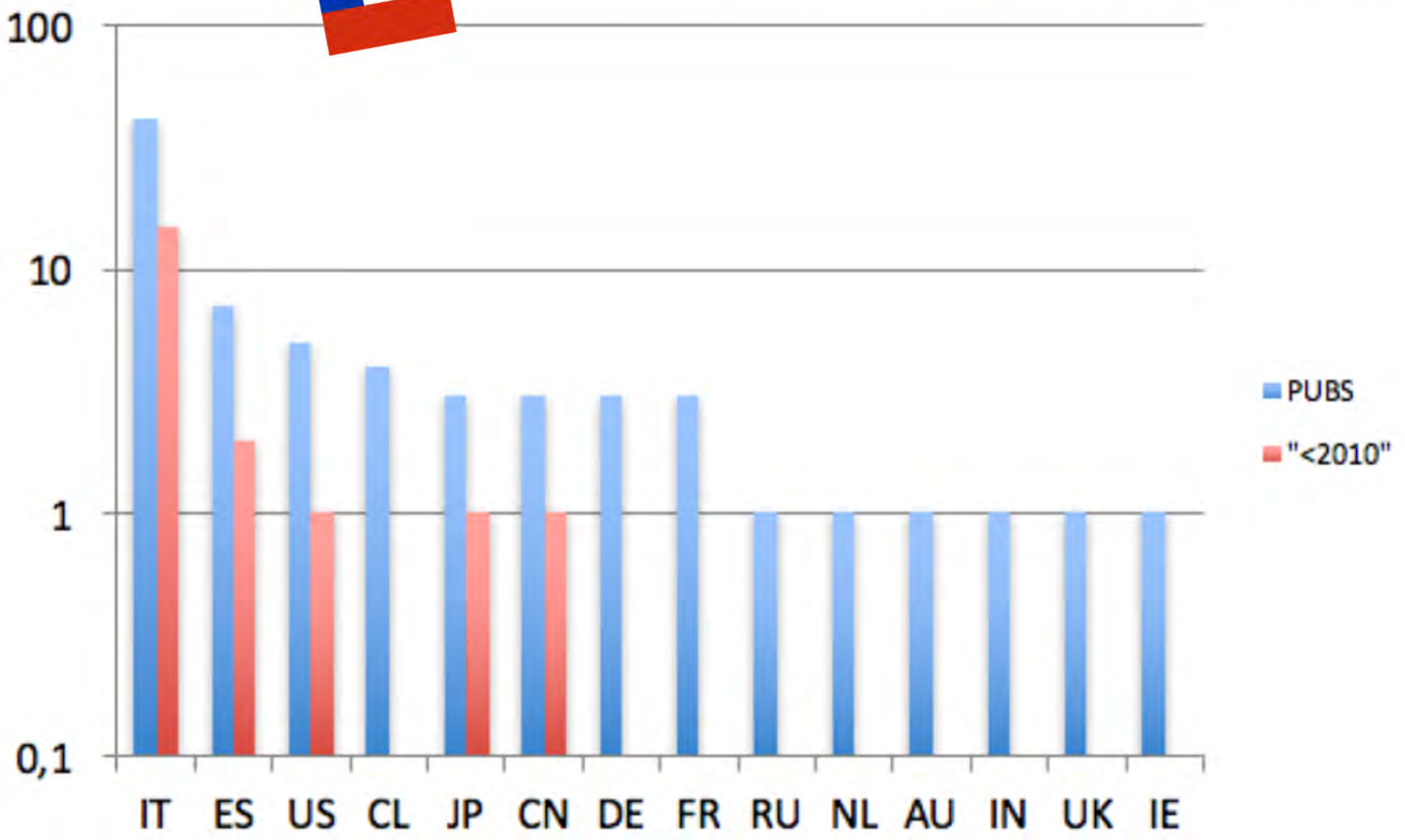


Muto, T.; Grady, C. A.; Hashimoto, J.; 4.) et al
 Discovery of Small-scale Spiral Structures in the Disk of SAO 206462 (HD 135344B): Implications for the Physical State of the Disk from Spiral Density Wave Theory

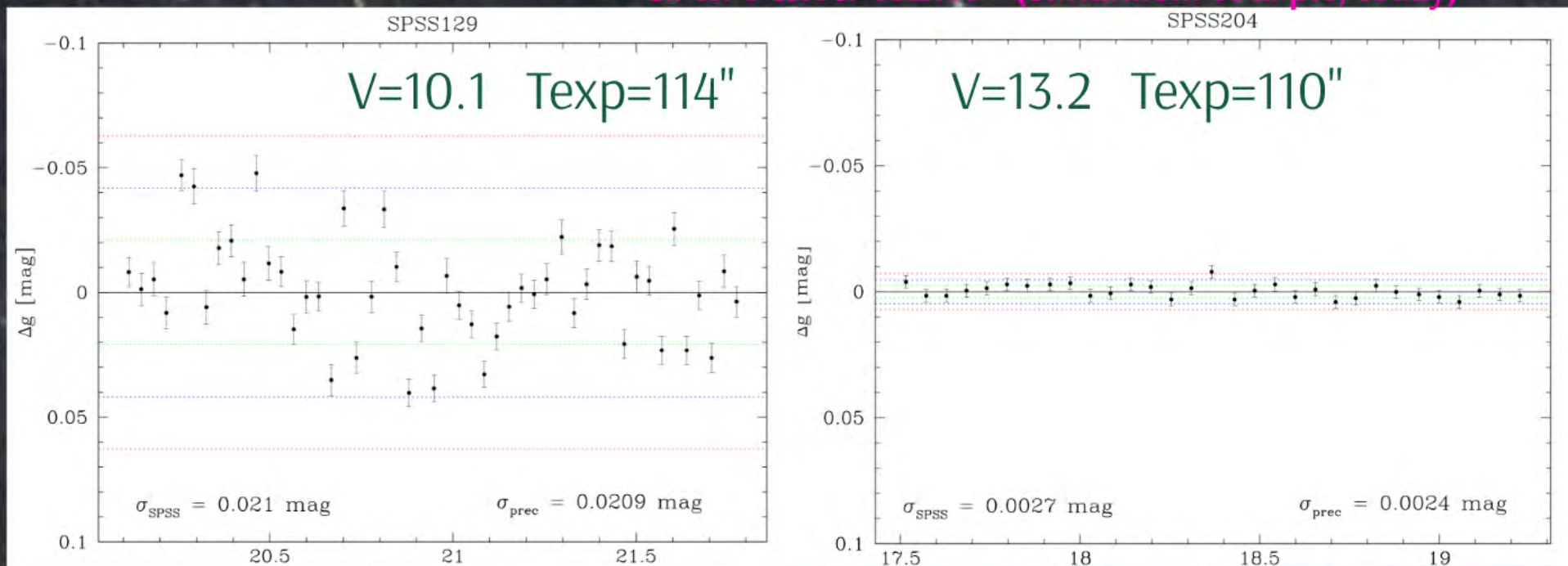
THE ASTROPHYSICAL JOURNAL LETTERS, 748:L22 (7pp), 2012 April 1

SAO 206462



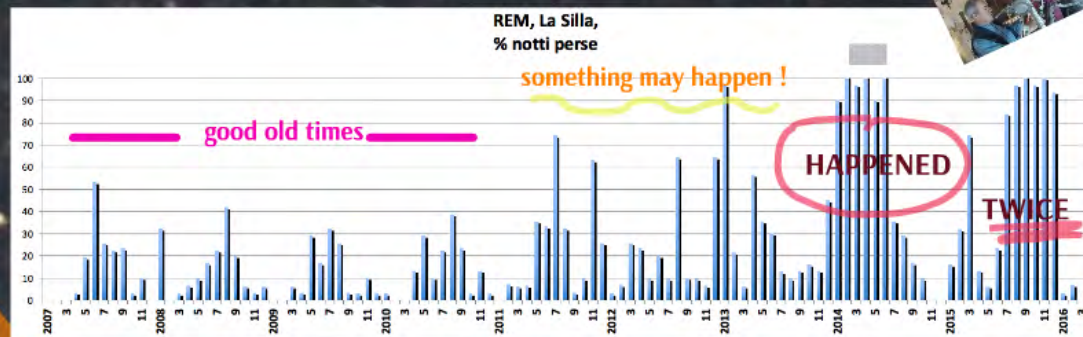


GAIA and REM (S. Marinoni et al p.c, today)



too far away from me

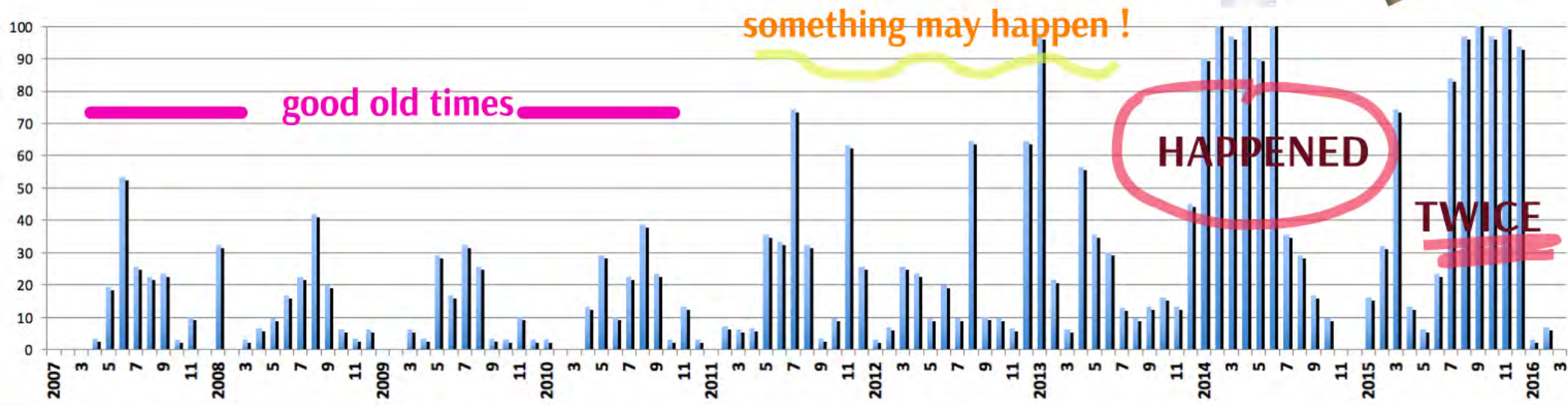
ESO support to La Silla site eventually dimmed to bare sustainability. So did REM recovery from big and small failures .



SO support to La Silla site eventually diminished to bare sustainability. So did REM recovery from big and small failures.



REM, La Silla,
% notti perse







future openings

REM is now (today) operative, the call for proposal for AOT 34 will close in 2 days.

Chilean CNTAC always filled its time slot.

REM is now part of the Italian offer to the OPTICON (H2020) proposal.

YES, we have a plan to refurbish our old electronics.

Chizzola P., Dini T., Molinari A., d'Alessio F., Covino S., Fugazza D., Malaspina G., Nicastro L., Righi C., Stefanon M., Testa V., Tresoldi F., Vitali F., Zampieri L., Zucconi M., Zucconi P., Zucconi R., Zucconi S., Zucconi T., Zucconi U., Zucconi V., Zucconi W., Zucconi X., Zucconi Y., Zucconi Z.

2016 d'REM Team: e.molinari, s.covino, f.d'alessio, d.fugazza, g.malaspina, l.nicastro, c.righi, m.stefanon, v.testa, d.tresoldi, f.vitali

REM automatic for the people


explore the REM archive



BIG CHANGES



REM subsystems
how REM listens, talks in and outside the dome



TORTORA



in the press




REM on a stamp



too far away from me



future openings



Chiant' you !

