

A black and white photograph of a wind turbine. The turbine's blades are visible, and the text 'AUTOMATIC FOR THE PEOPLE' is overlaid at the top in a bold, white, sans-serif font. In the center, the letters 'R.E.M.' are overlaid in a similar font. The background shows the textured surface of the turbine's nacelle or tower.

AUTOMATIC FOR THE PEOPLE

R.E.M.

Malaga 2009

**Emilio Molinari
and the
d'REM Team**

AUTOMATIC FOR THE PEOPLE

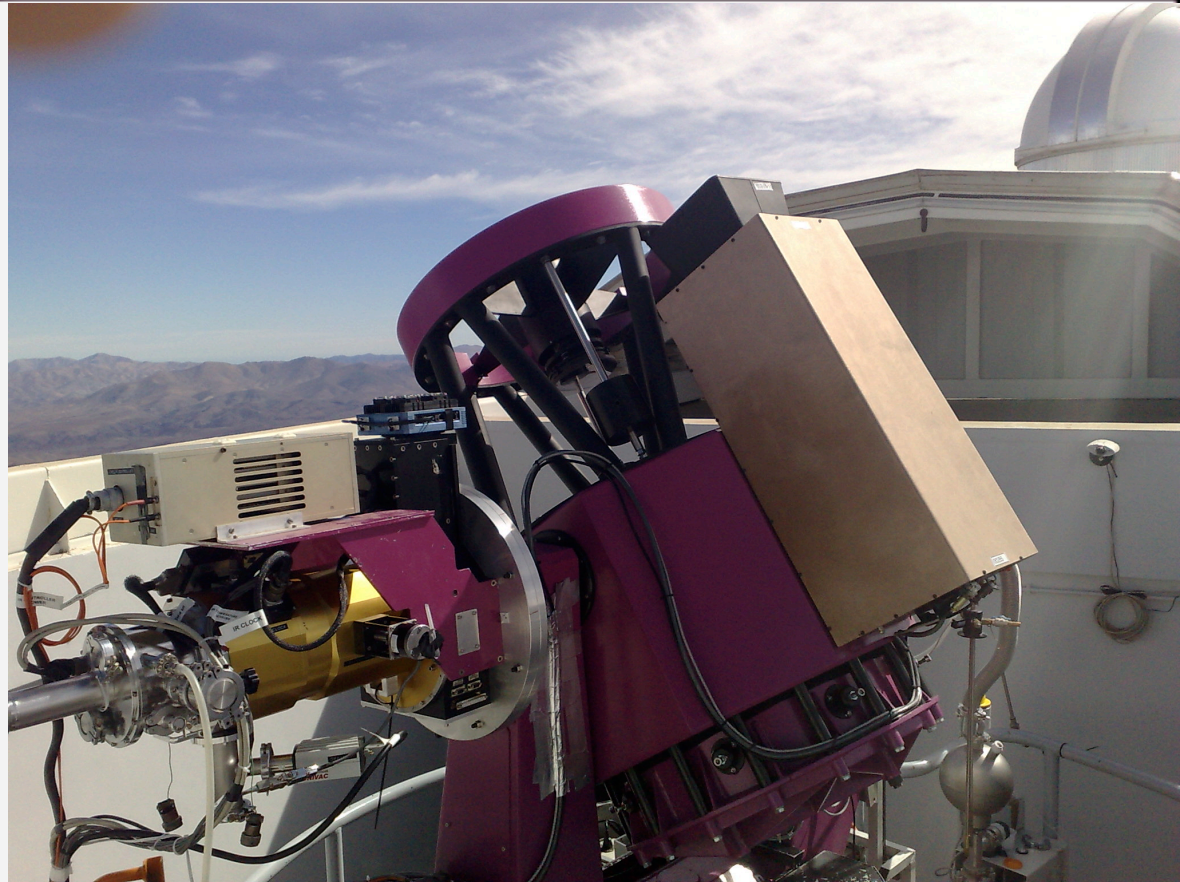
R.E.M.

1 dome

2 telescopes

3 instruments

nice color



2009

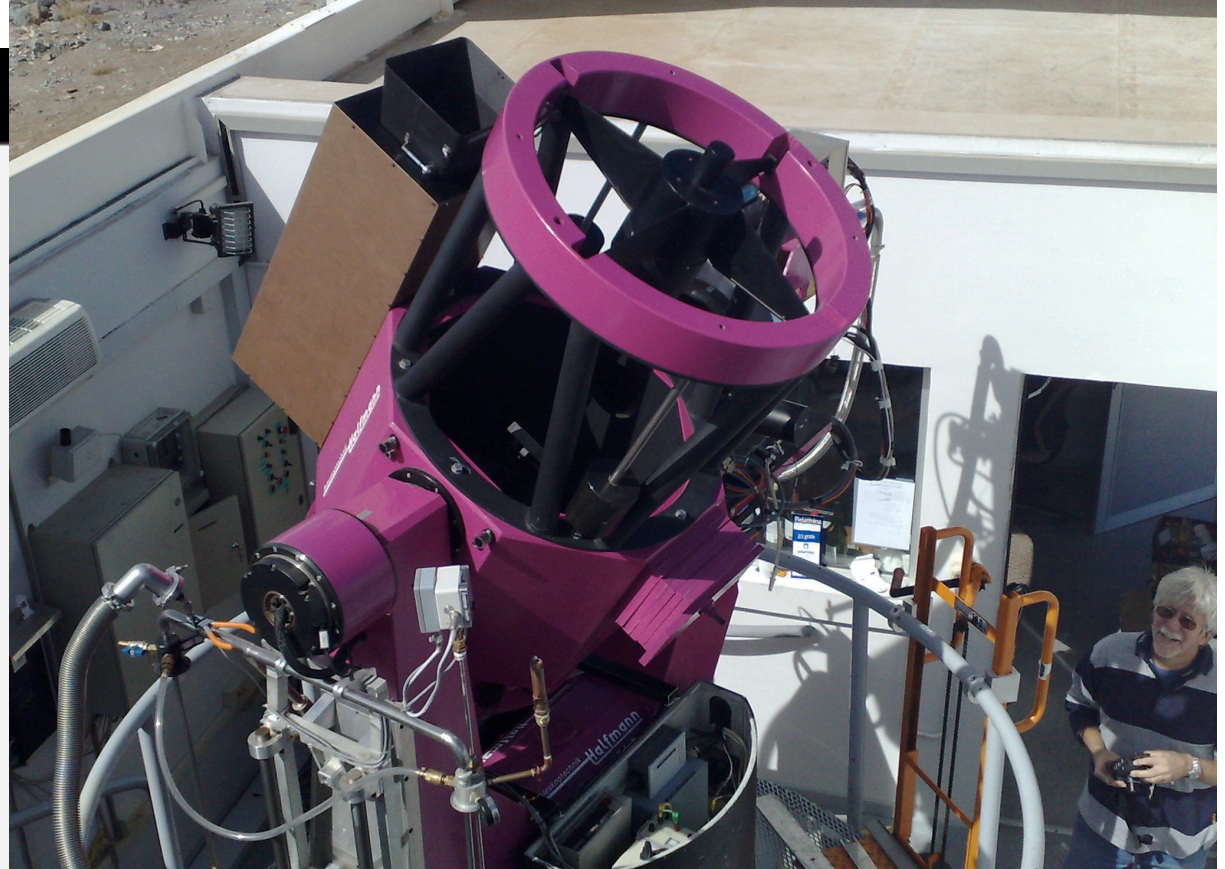
Emilio Molinari

REM

AUTOMATIC FOR THE PEOPLE

R.E.M.

WAS BUILT FOR



REM

- react immediately to alerts
- see the afterglow of GRBs
- classify OT/IT looking for high- z

Augusta 2009
Emilio Molinari

REM

robust & fast enough
big enough
VIS+IR

HW

SW

control the telescope
command cameras
quick analysis
alert the world (VLTs...)

robust & fast enough
big enough
VIS+IR

control the telescope
command cameras
quick analysis
alert the world (VLTs...)

YES
NO
YES

YES
YES
≈
NO

R.E.M.

YES

NO

YES

YES

YES

&

NO

The
R.E.M.
Observatory



Telemetry and alarms

In situ team
(ESO 4 musqueteers)

R&D (cryo,
tortora, VIS)

AOT (offered for proposals)

May 2009
Emilio Molinari

REM

AUTOMATIC FOR THE PEOPLE

R.E.M.

HW¹

Halfmann TT

Aniol

4π

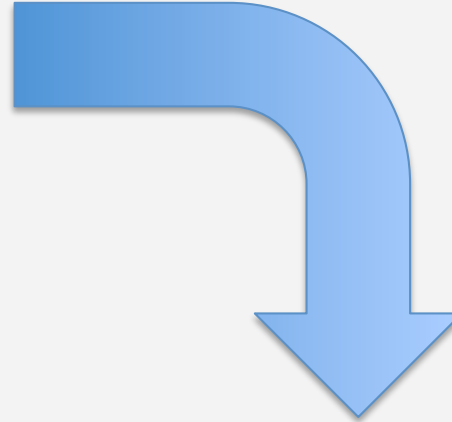
well know people
and problems

*REM as a
testbench*



HW²

REMIR Infrared Lab
ROSS in house



~~we tried but no spectroscopy~~
simultaneous VIS/NIR
zJHK'
VRI

Un altro telescopio è possibile.



AUTOMATIC FOR THE PEOPLE

R.E.M.

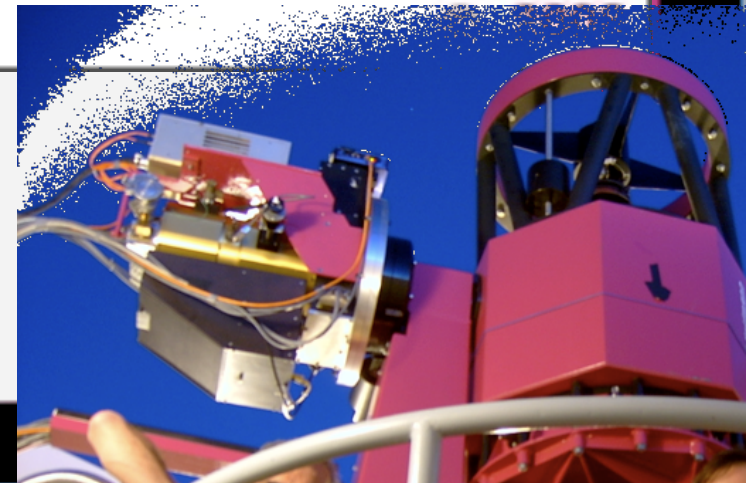
The REM⁺ Observatory

NGC 3606

JHK REMIR VRI ROSS



Hawaii I/4 (512x512)
Apogee Alta (1Kx1K)

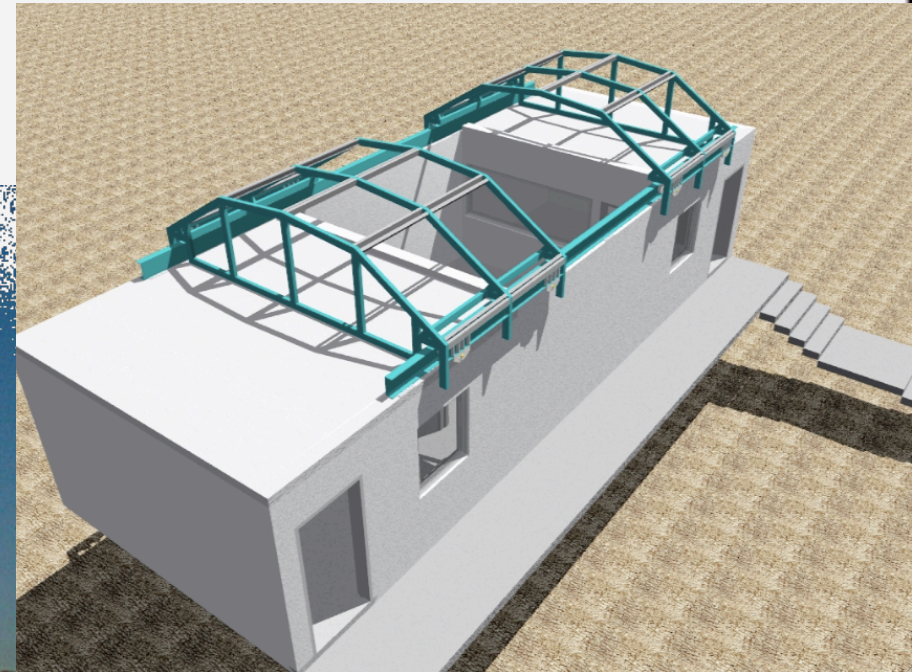


AUTOMATIC FOR THE PEOPLE

R.E.M.

HW³

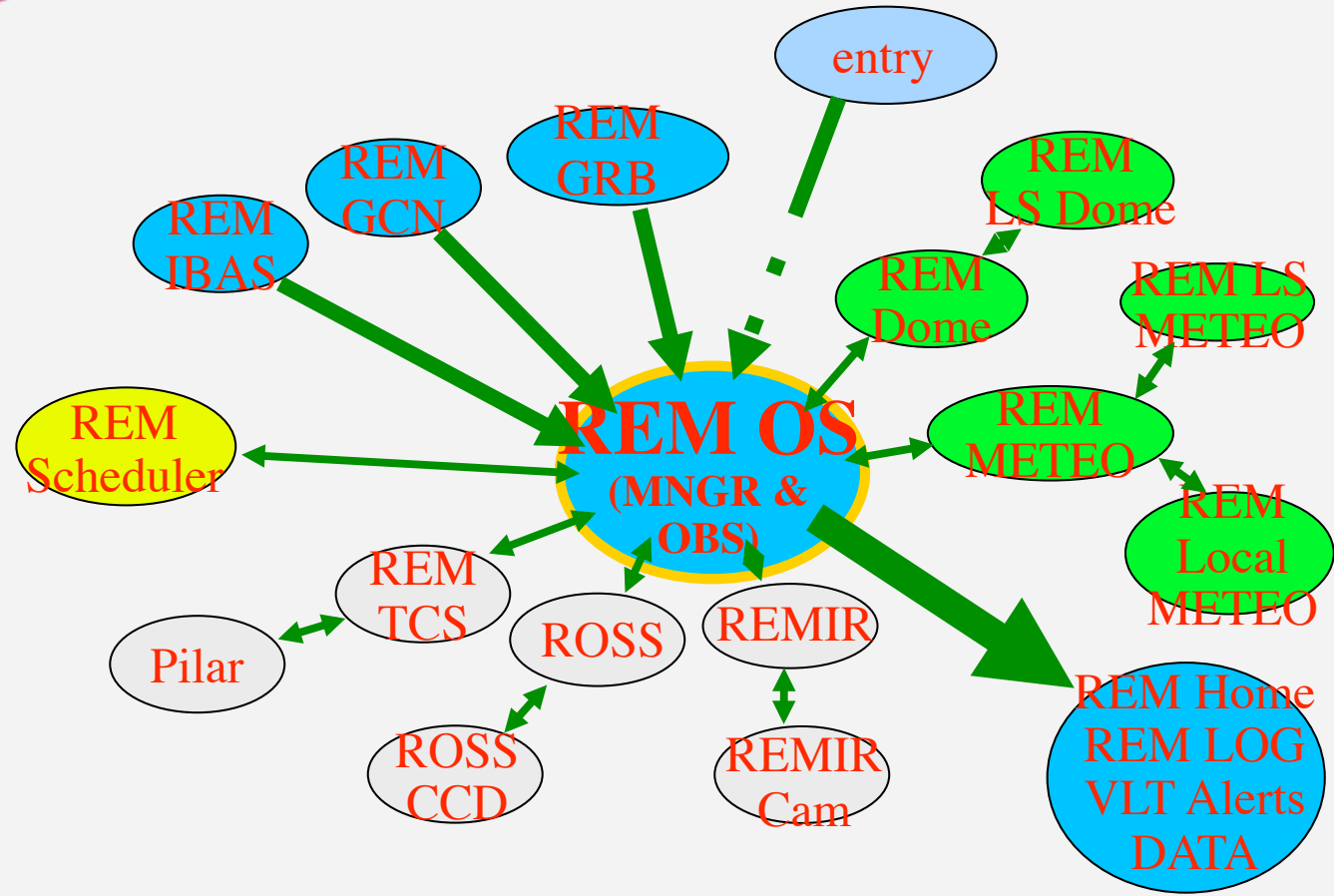
ESO La Silla (the way they were)



2009

Emilio Molinari

REM



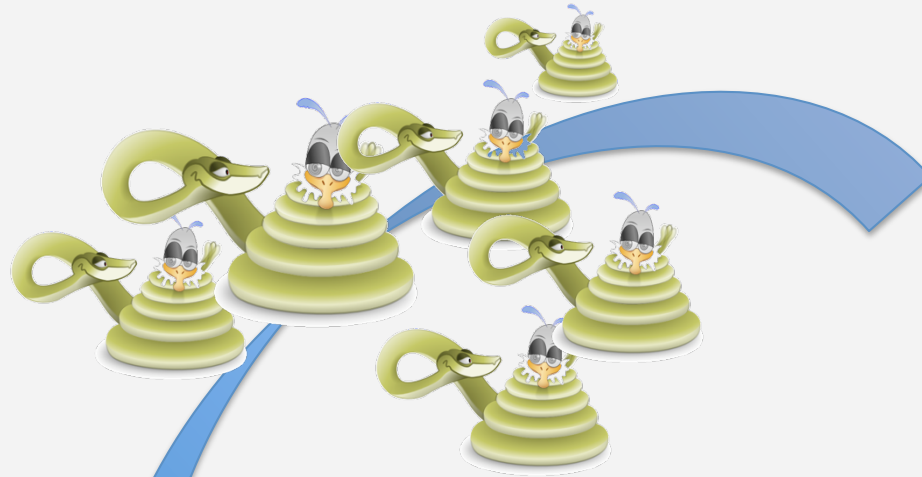
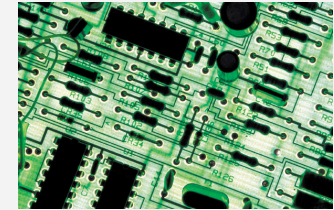
How do we control all this net?

MS was well inside and we have



!



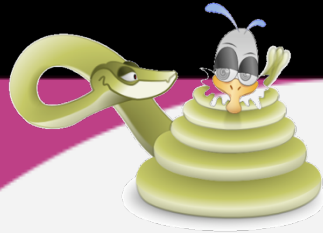


A full basket of pythons running every 2/5 minutes to feed telemetry of telescope and instruments, check status, send alarms.

```
dbq = new_Query(null,p, 0)
datain = time.strftime('\'%Y-%m-%d %H
log_stringdb = datain+", "+str(tcs_upda
muque = "INSERT INTO TeleTCS(datein,
#print muque
Query_prepare(dbq, muque)
Query_execute(dbq, 1)
```

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R.E.M.



The 2' python: a **tREMometer** for REM

A full resume of
the status, sent
public to the web

```
tREMometro (© REM) at polaris.1  
...created: Mon May 11 09:33:05 UTC 2009  
.displayed: Mon May 11 09:38:39 UTC 2009  
-----**** GREYED SYMBOLS/DATA meaning NO!
```

ALARM

CECE



+/- 15 elev

S

GRB09051

A series of SMS/e-mail alarms and safety
procedures

polaris.merate.mi.astro.it/trem/
www.ls.eso.org/lasilla/rem

May 2009
Emilio Molinari

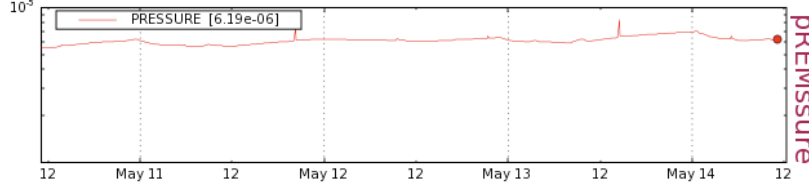
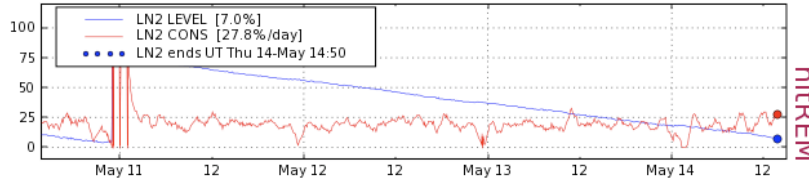
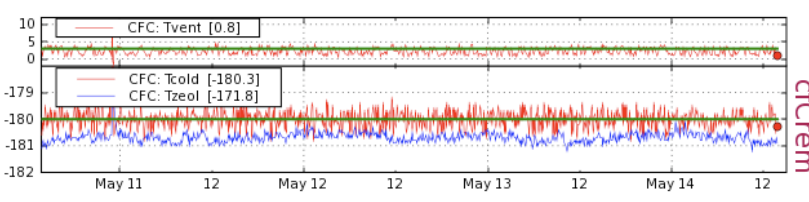
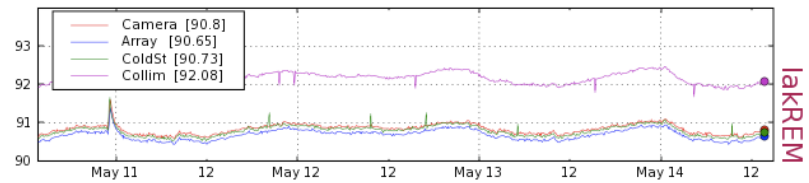
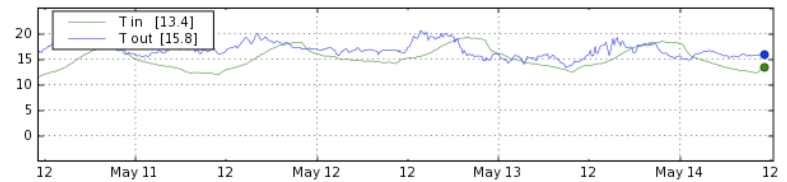
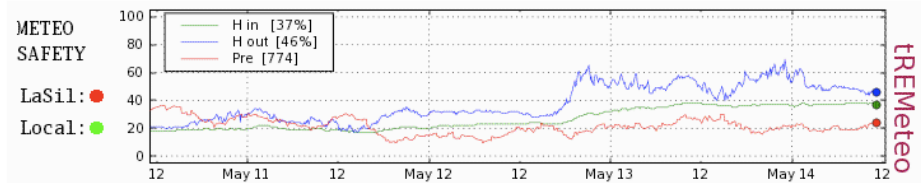
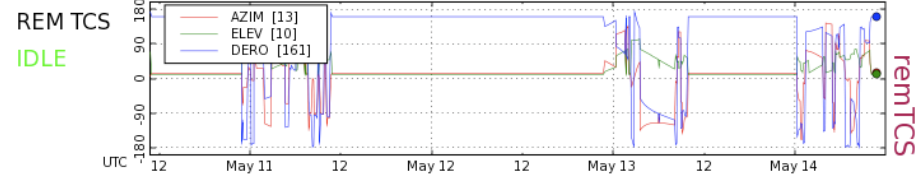
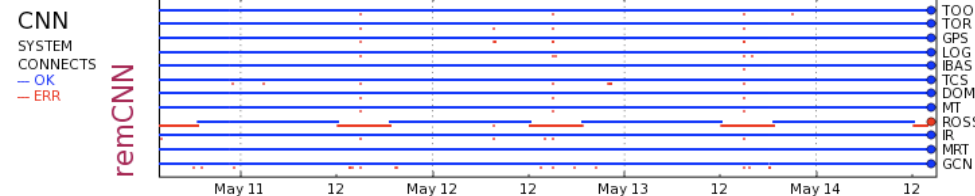
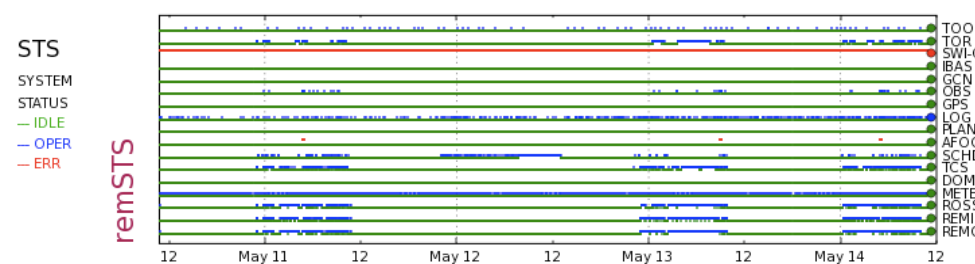
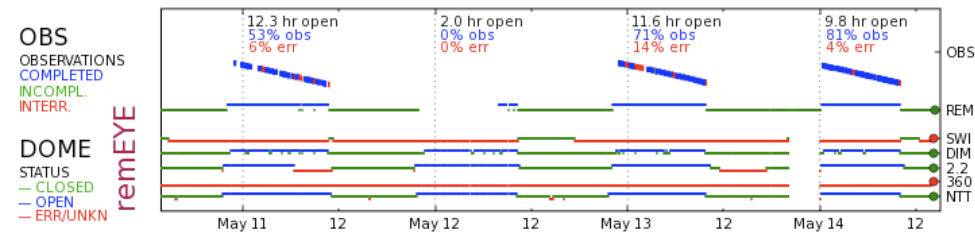
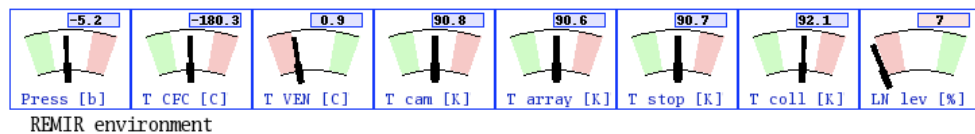
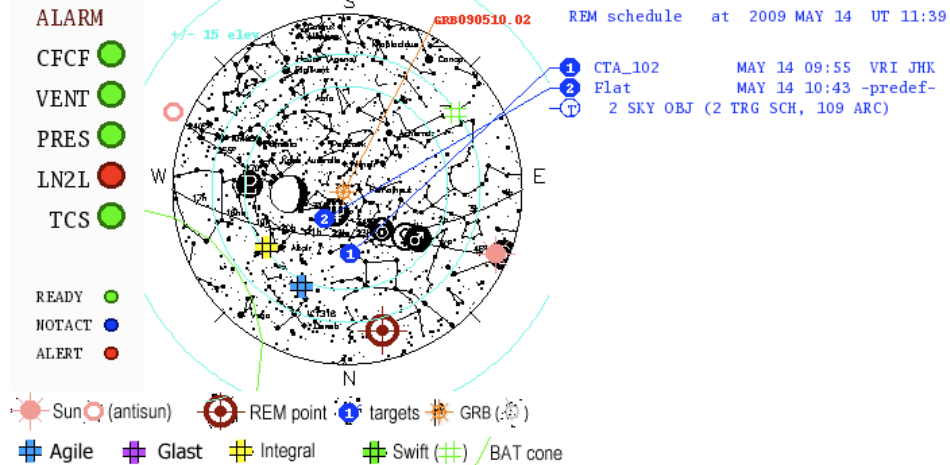
REM

tREMometro (© REM) at polaris.merate.mi.astro.it

...created: Thu May 14 13:45:05 UTC 2009 [remos.ls.eso.org]

.displayed: Thu May 14 13:55:31 UTC 2009 [your computer]

-----**** GREYED SYMBOLS/DATA meaning NOT UPDATED ****-----



t-REM-o-meter



FIRST: look at the alarms

The sky-above-lasilla

REM pointing and targets in the queue

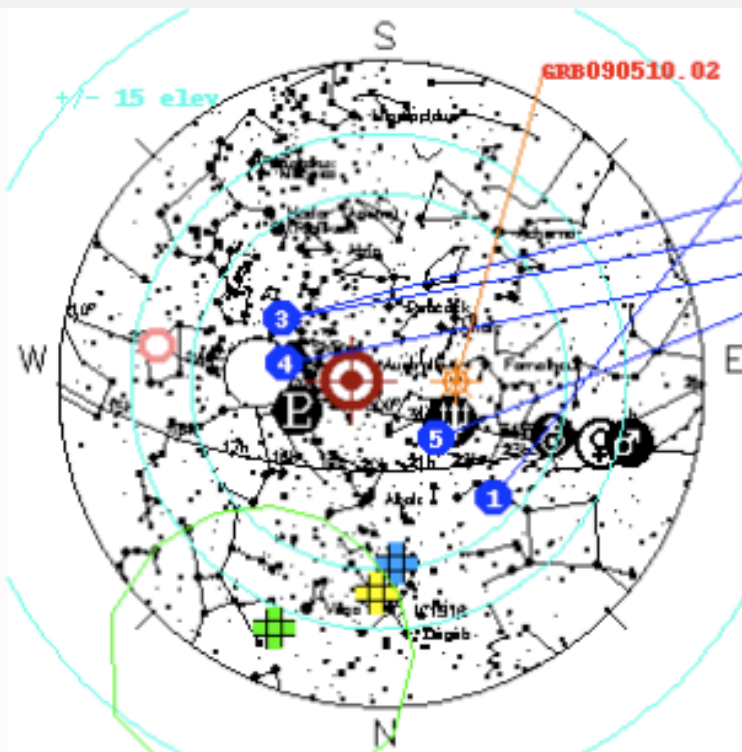
All interesting satellites

The last GRB

ALARM

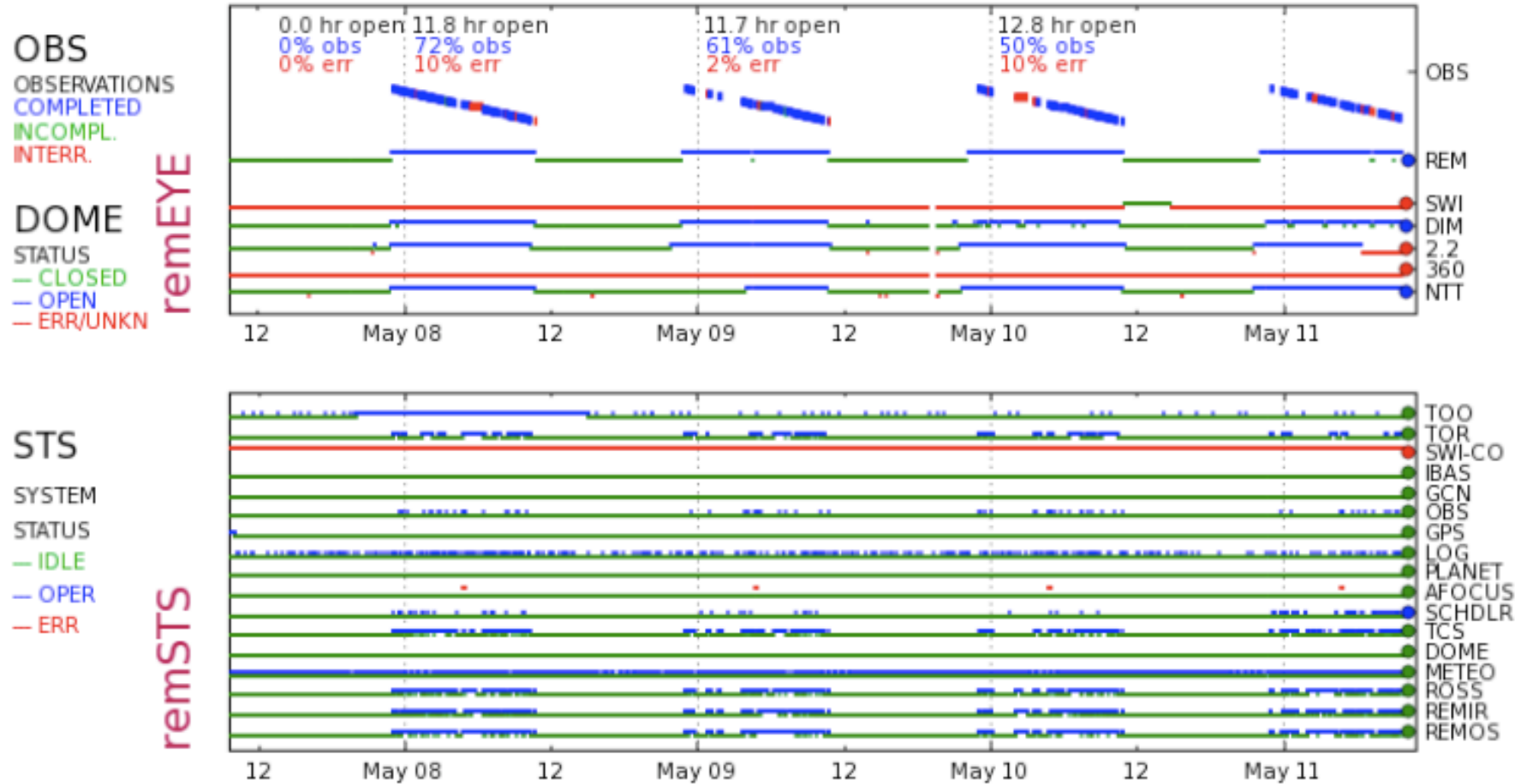
- CFCF ●
- VENT ●
- PRES ●
- LN2L ●
- TCS ●

- READY ●
- NOTACT ●
- ALERT ●



REM schedule at 2009 MAY 11 UT 09:39

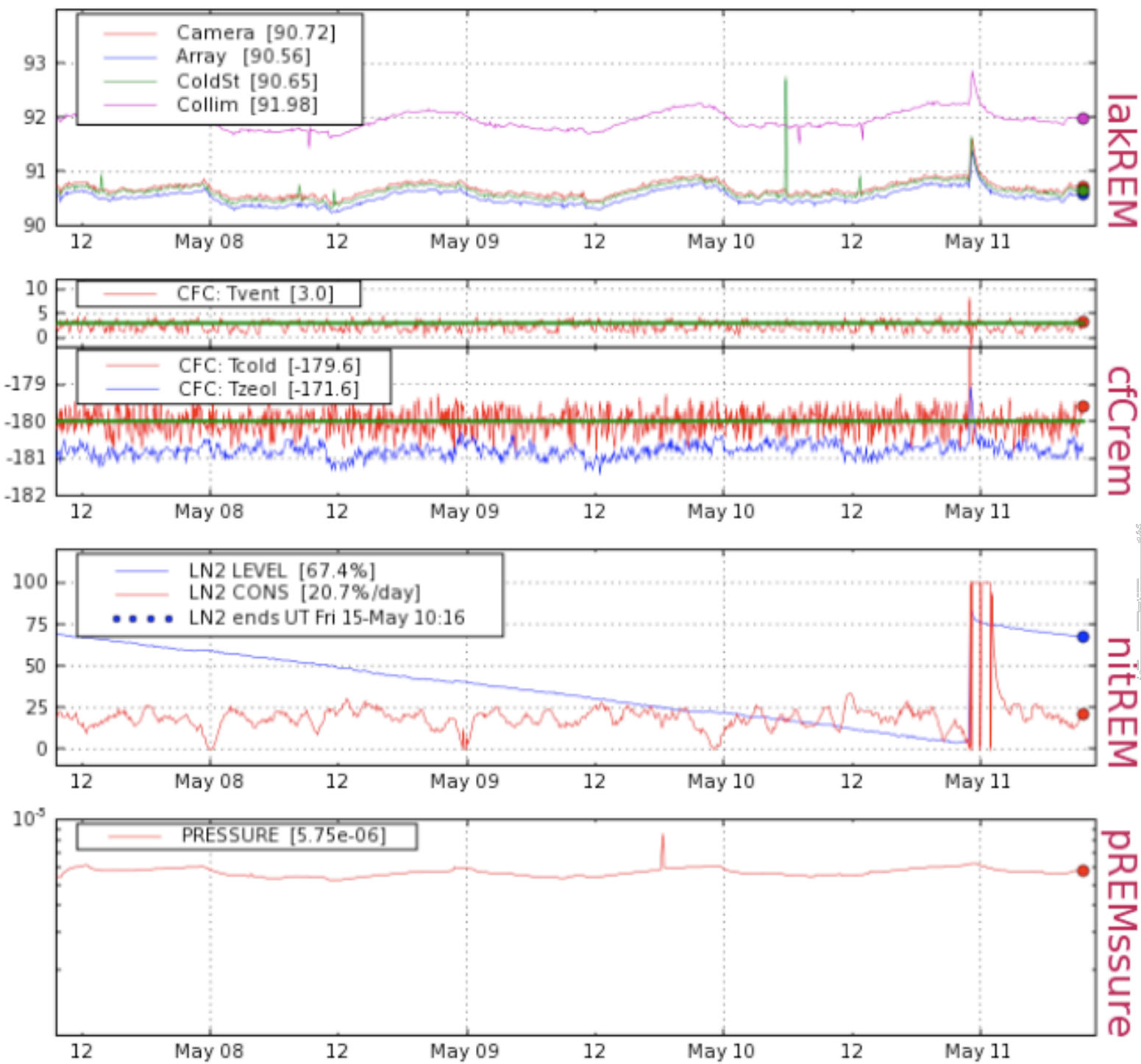
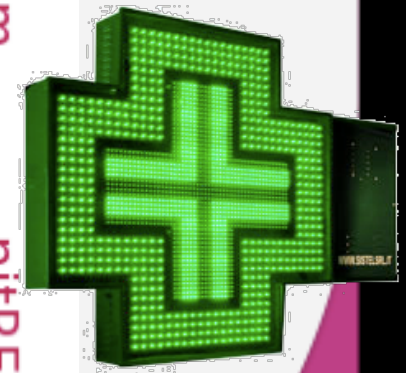
1	CTA_102	MAY 11 09:47	VRI JHK
2	V1104_Sco	MAY 11 10:03	V K
3	V1104_Sco	MAY 11 10:05	RI JH
4	IGRJ17391-3021	MAY 11 10:08	VRI JHK
5	Flat	MAY 11 10:41	-predef-
5 SKY OBJ (5 TRG SCH, 122 ARC)			



Look at WHO is really working and who is sleeping.
Or who is in going wrong...

Tele
Medicin

for the
IR cryo

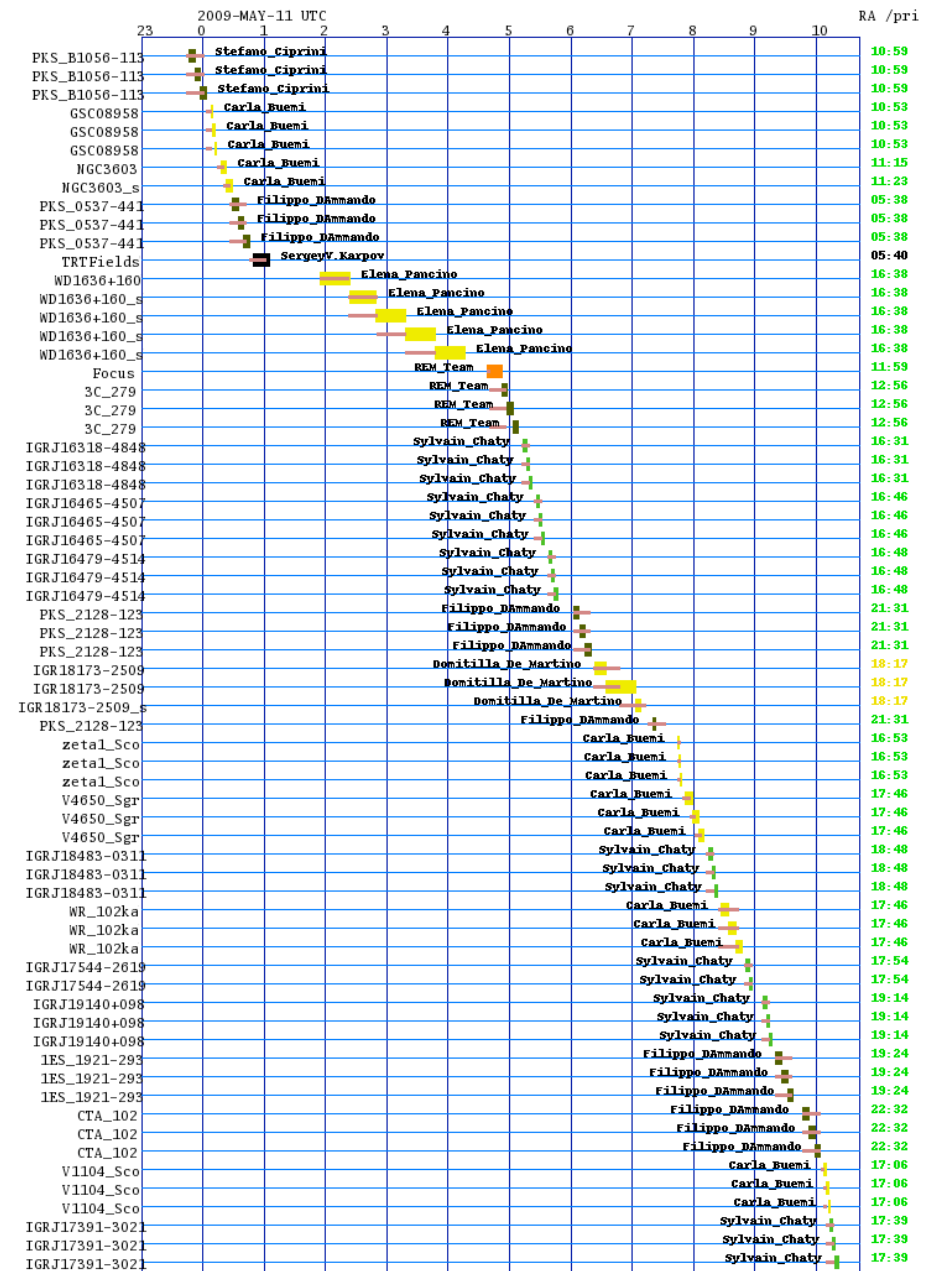
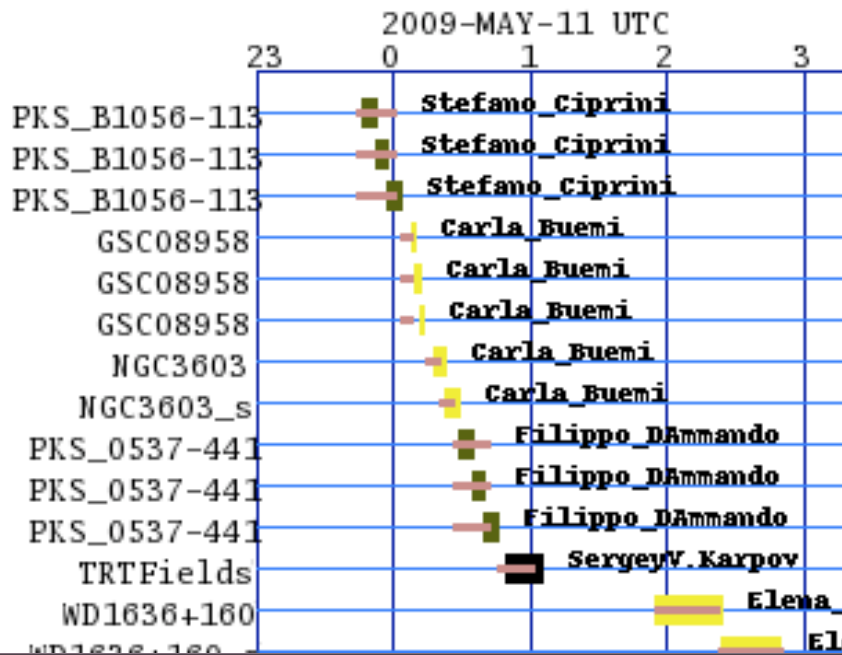


aga 2009
Malineri
REM

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Automatic report of the night (gantt !)





Immediate publicly visible image preview.

Observation Target (71341) IGRJ17391-3021
2009-MAY-11 (*Sylvain_Chaty*)

ROSS: 2 frames; REMIR: 1 frames.

ROSS

Observation Target (71338) V1104_Sco
2009-MAY-11 (*Carla_Buemi*)

ROSS: 3 frames; REMIR: 1 frames.

ROSS

Observation Target (71335) CTA_102
2009-MAY-11 (*Filippo_DAmmando*)

ROSS: 1 frames; REMIR: 1 frames.

ROSS

1338

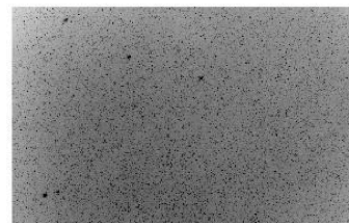
1104_Sco

2009-05-11T10:12:05

)

7391-3021

2009-05-11T10:19:02



obsid 71335
subid 0
object CTA_102
date 2009-05-11T09:58:51
exp time 300
filter I

Magica 2009
Emilio Molinari



ALARMS:

- in case of IR camera malfunction
- in case the telescope does not move
- or the dome is open in daytime

Stops observing operations

Prevents IR camera acquisitions


Alerts via e-mail REM and ESO staff

ALARM

CFCF 

VENT 

PRES 

LN2L 

TCS 

READY 

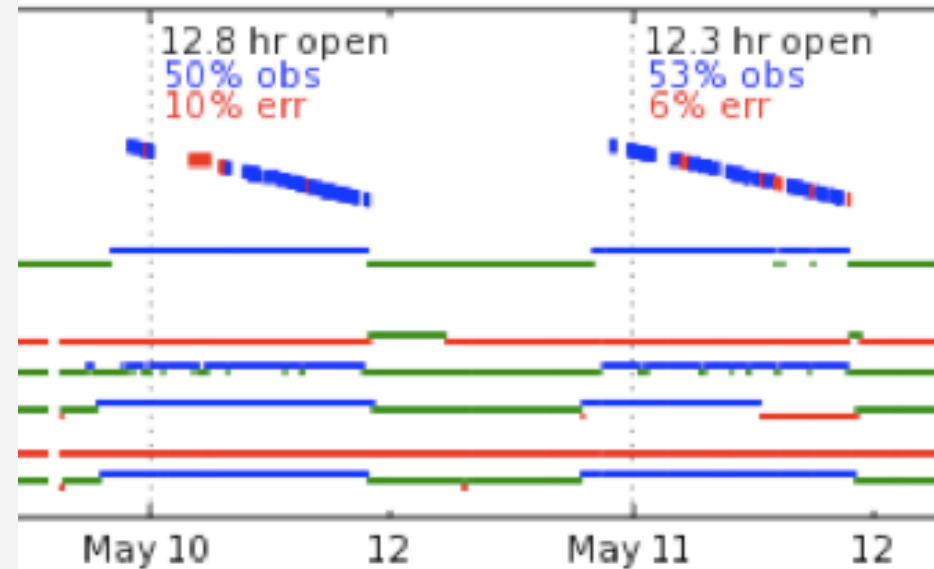
NOTACT 

ALERT 

EVALUATION:

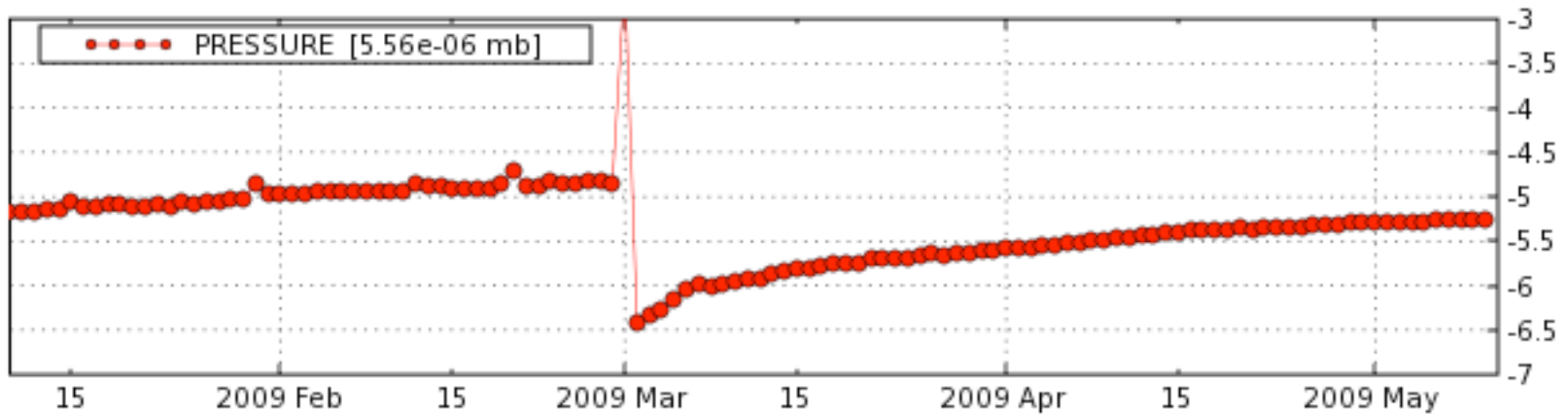
Automatic evaluation
Of the night.

- Statistics on site weather and
- REM performance



PRE
IONIVAC
DAY AVG

remPRE



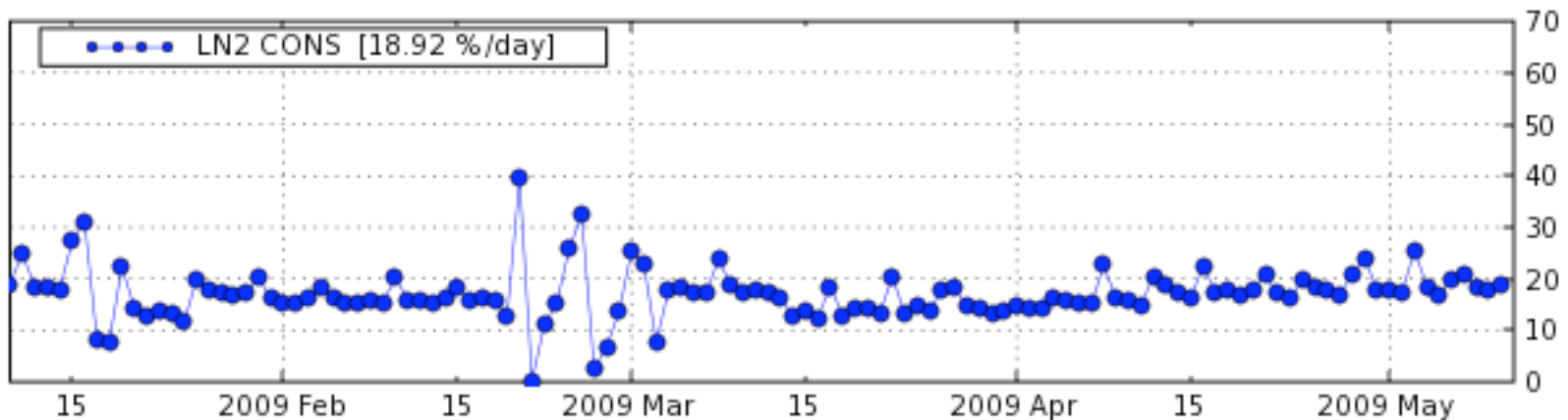
WEEKLY REPORTS (1)

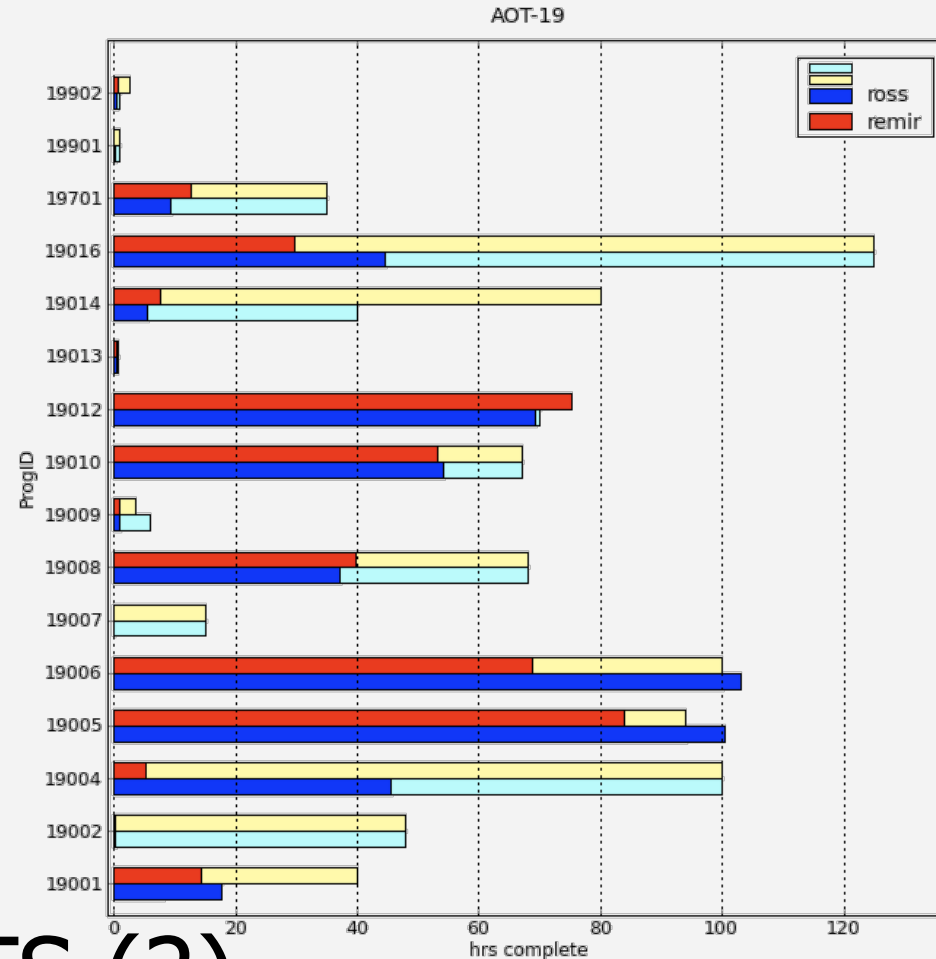
Automatic e-mail on...

trends of dewar pressure and LN2 consumption
Helping in programming mid-term maintenance

LN2
CONSUMPTION
DAY AVG

remLIF





WEEKLY REPORTS (2)

on observing programs status
to keep an eye on customers' status...



DATA DISTRIBUTION

"good morning, PI!

We observed while you were sleeping, now you can have:

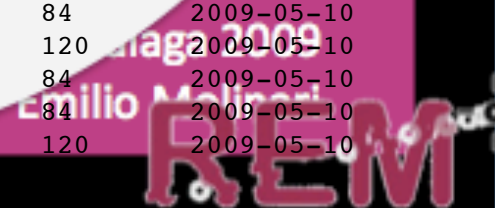
- Images
- Astrophotometric files

Log into REM Archive."

Total Nr of images taken: 1114 (ROSS: 237 REMIR: 877)

Here is a short log of the night (only DISTINCT setup list):

propID	object	pi_coi	filter	exptime	Nobs	TotExp	Day
5	SA098_978	REM_Team	GRI	5	7	35	2009-05-09
5	SA098_978	REM_Team	H	5	7	35	2009-05-09
5	SA098_978	REM_Team	I	20	8	160	2009-05-09
5	SA100_241	REM_Team	V	20	8	160	2009-05-09
5	SA100_241	REM_Team	Z	5	7	35	2009-05-09
7	Focus	REM_Team	R	5	11	55	2009-05-10
8	TRTFields	SergeyV.Karpov	H	12	119	1428	2009-05-10
8	TRTFields	SergeyV.Karpov	R	60	21	1260	2009-05-10
19001	IGRJ16318-4848	Sylvain_Chaty	H	12	7	84	2009-05-10
19001	IGRJ16318-4848	Sylvain_Chaty	I	60	2	120	2009-05-10
19001	IGRJ16318-4848	Sylvain_Chaty	J	12	7	84	2009-05-10
19001	IGRJ16318-4848	Sylvain_Chaty	K	12	7	84	2009-05-10
19001	IGRJ16318-4848	Sylvain_Chaty	R	60	2	120	2009-05-10

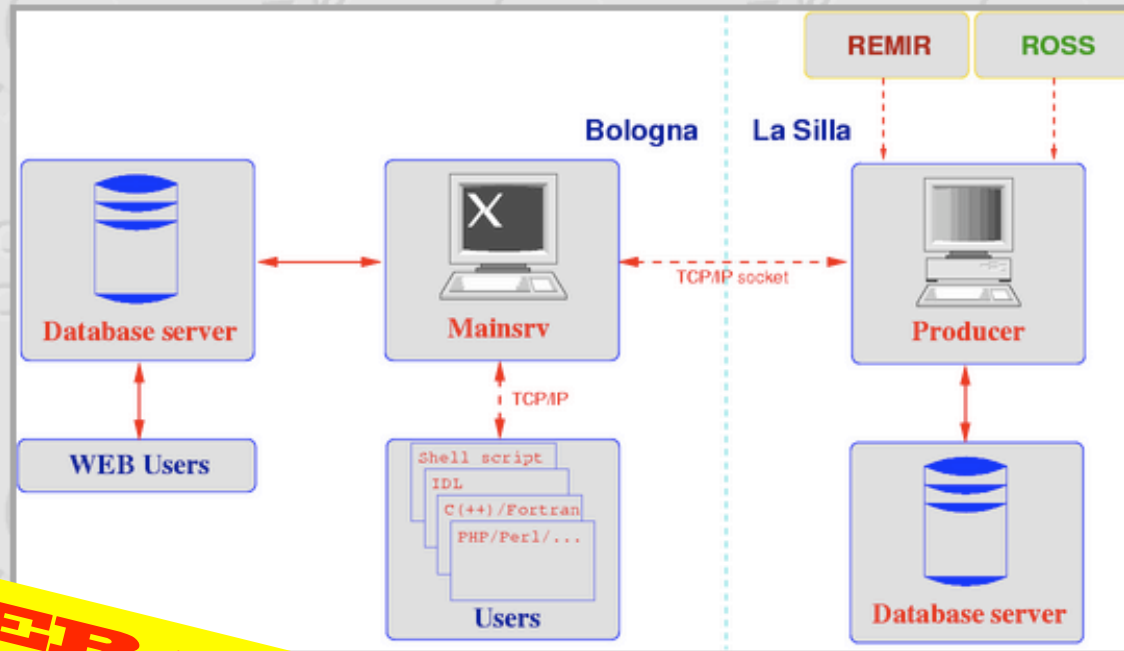


DATA DISTRIBUTION

an archive for REMote *immediate* retrieval

REM-Proprietary data archive browser

ROSS: **267211** images + **18861** dark frames, REMIR: **744337** images collected so far. View the [data flow](#).

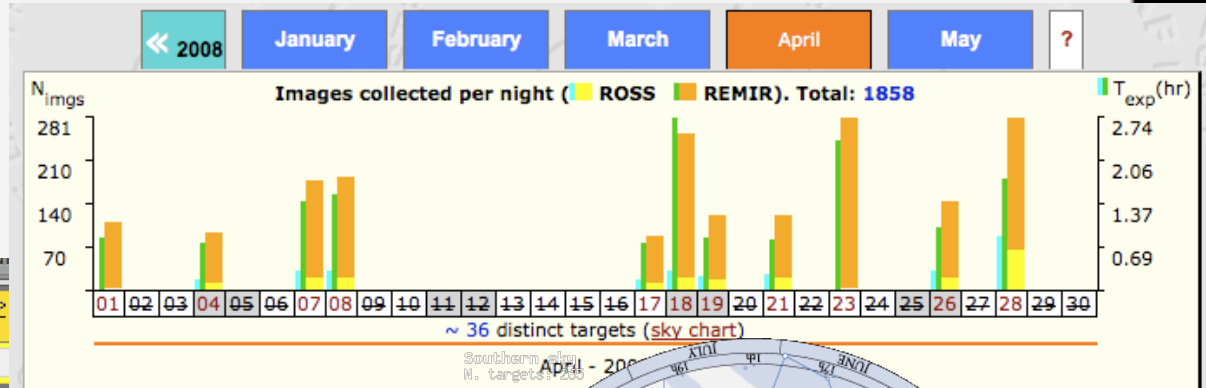


OVER 1 MILLION IMAGES !! (May 2009)

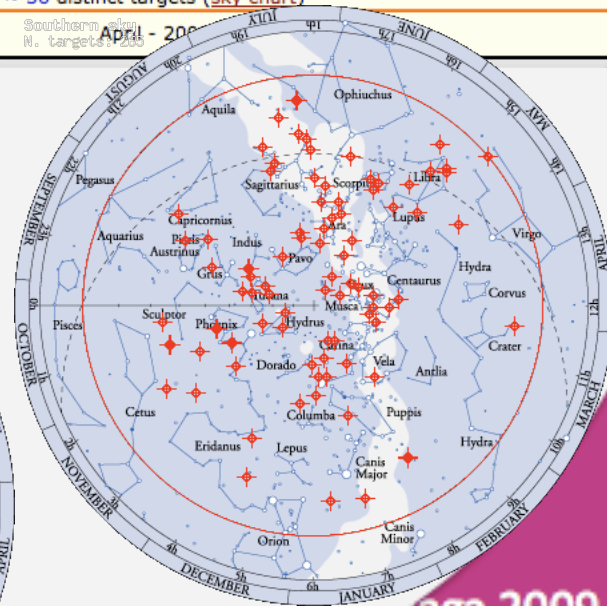


DATA DISTRIBUTION

an archive data browsing



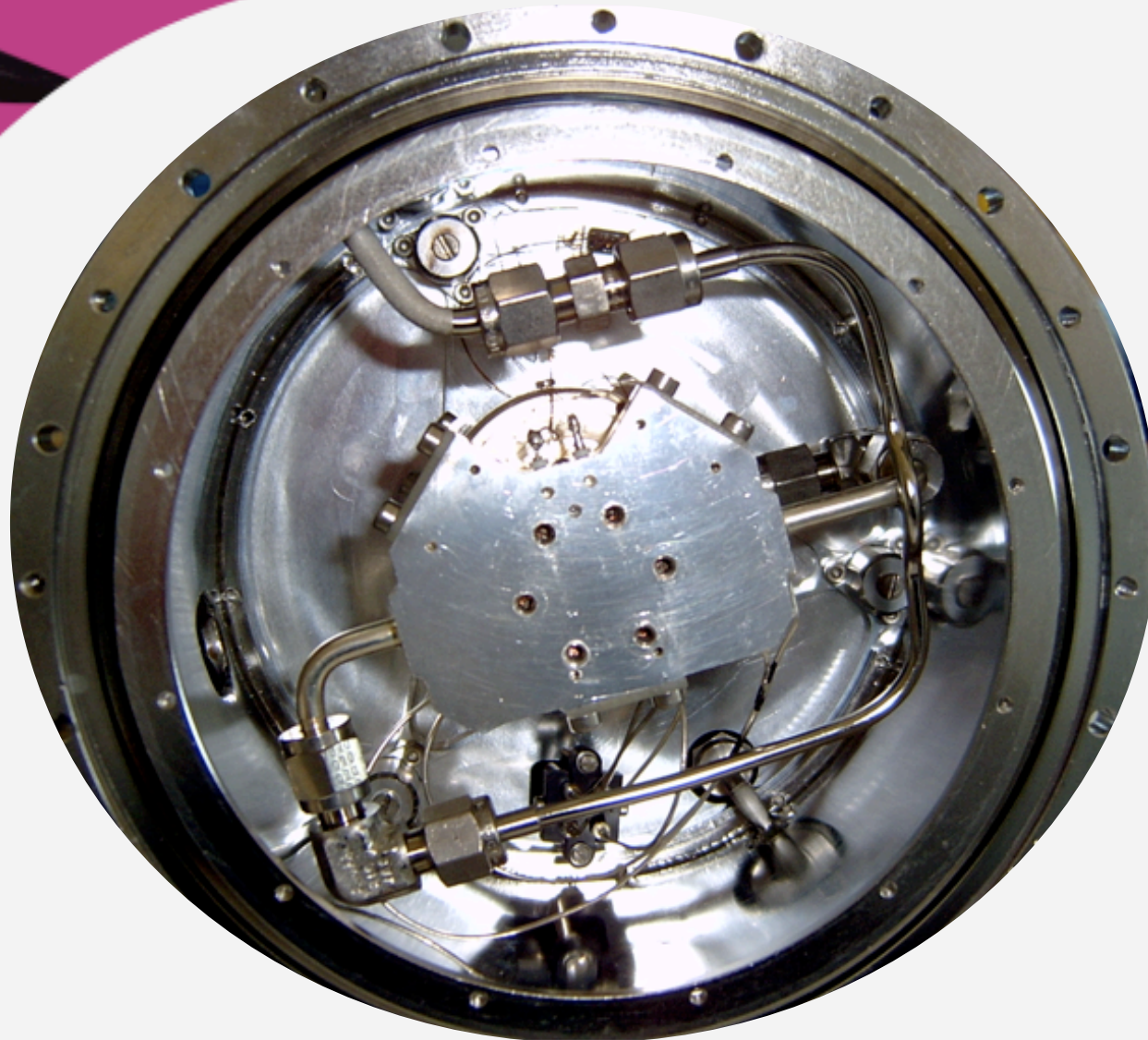
Select	GRB	where	ImgNight		
Order by	Date	<input type="checkbox"/> Ascending	Format LongTab		
Filename	Object	RA	Dec	uniqueID	I
IMG110R162	GRB090422.15	19:38:54.24	+40:23:39.8	47550400	20C
GRB090422.15 5 30 H 2	GRB090422.15	19:38:59.83	+40:23:07.1	47550202	20C
IMG110R161	GRB090422.15	19:38:54.00	+40:23:39.1	47550300	20C
GRB090422.15 5 30 H 1	GRB090422.15	19:38:59.83	+40:23:07.1	47550201	20C
GRB090422.15 4 10 Z 5	GRB090422.15	19:38:54.00	+40:23:39.1	47550300	20C
IMG110R160	GRB090422.15	19:38:54.00	+40:23:39.1	47550300	20C



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R&D (1)



So with the help of ESO we replaced it with a CFC

May 2009

Emilio Molinari

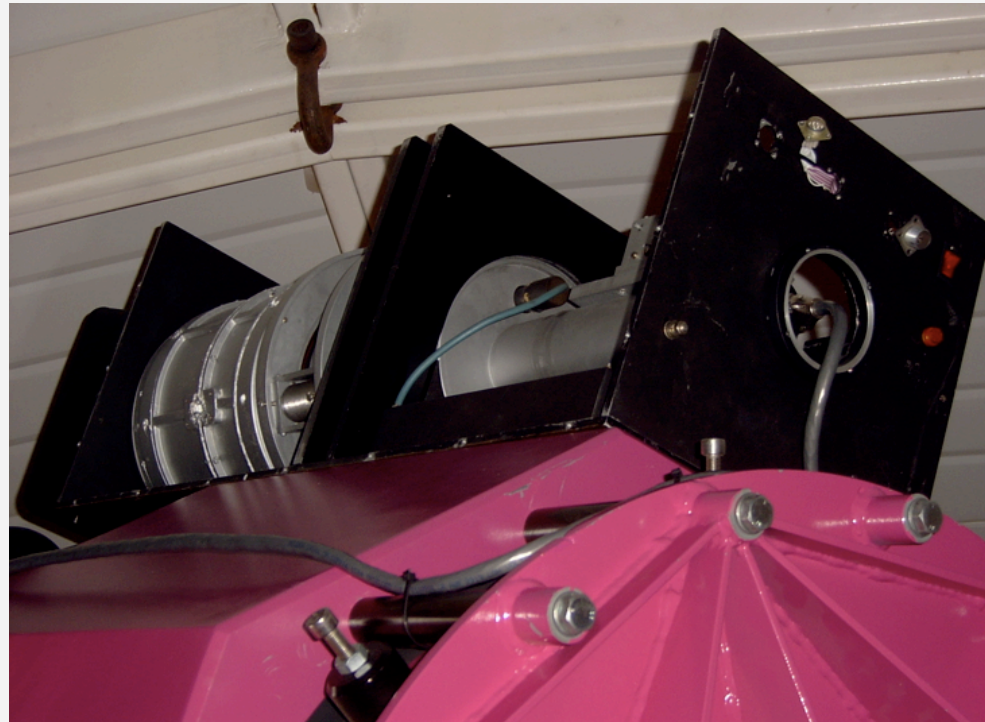
REM

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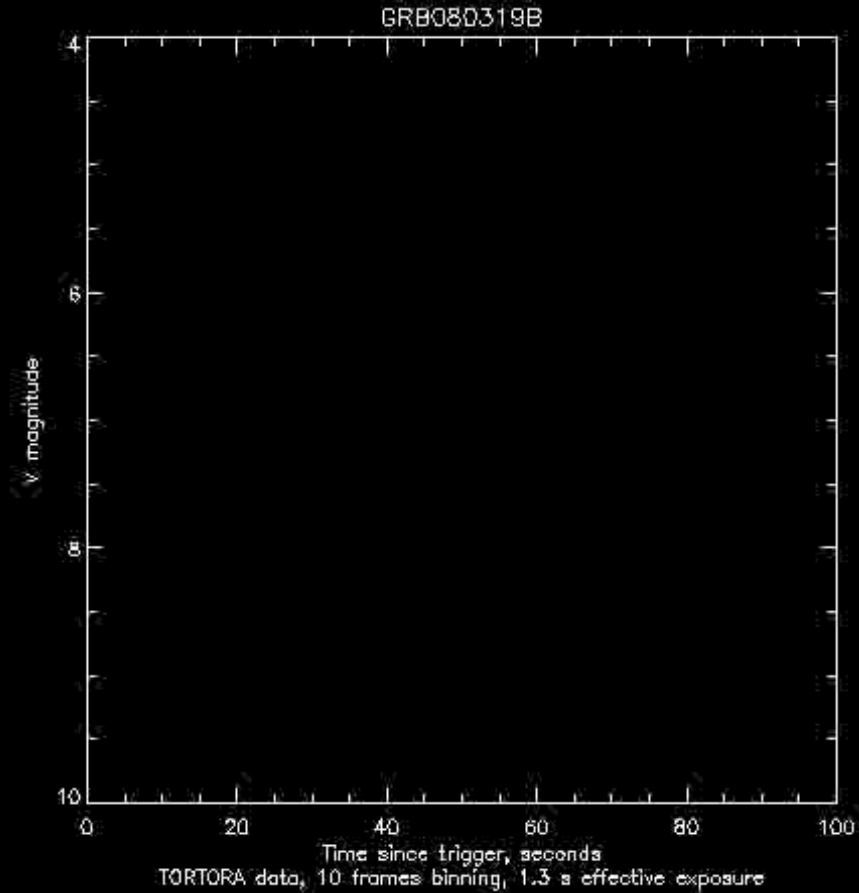
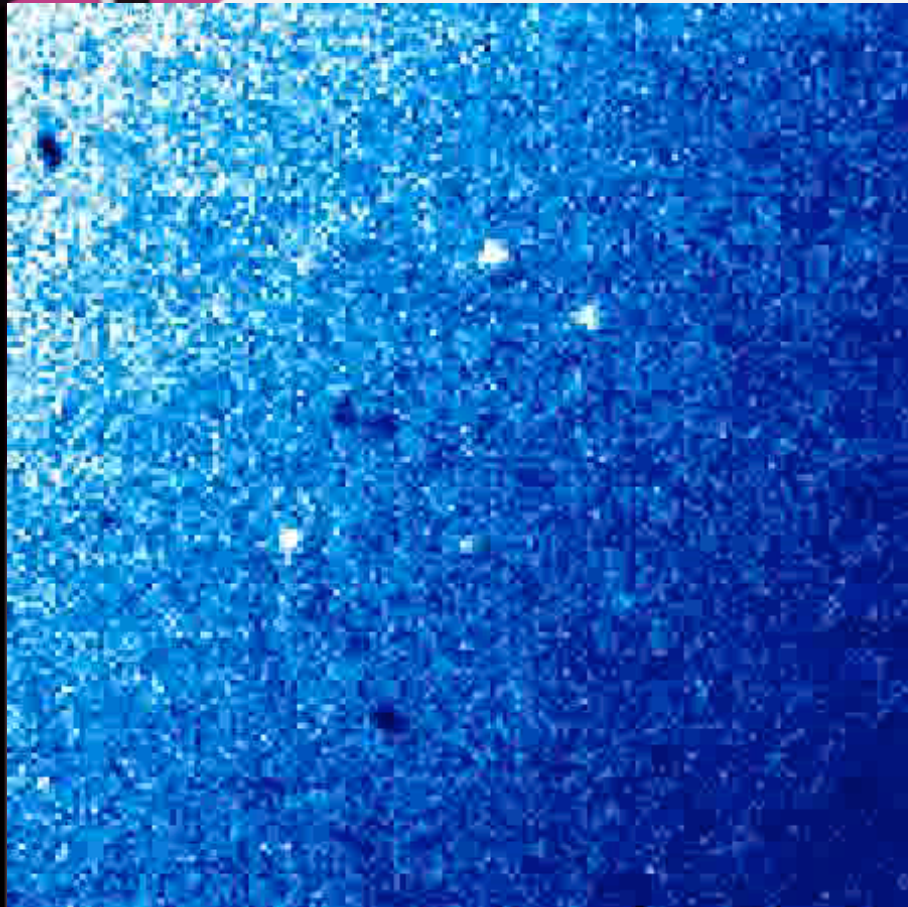
R&D (2)

We felt that the weight of the two cameras was not enough to test REM strenght.



(2) So we added TOPTOPA telescope a quasi-TV, wide field visible camera with the help of Russian spirit...



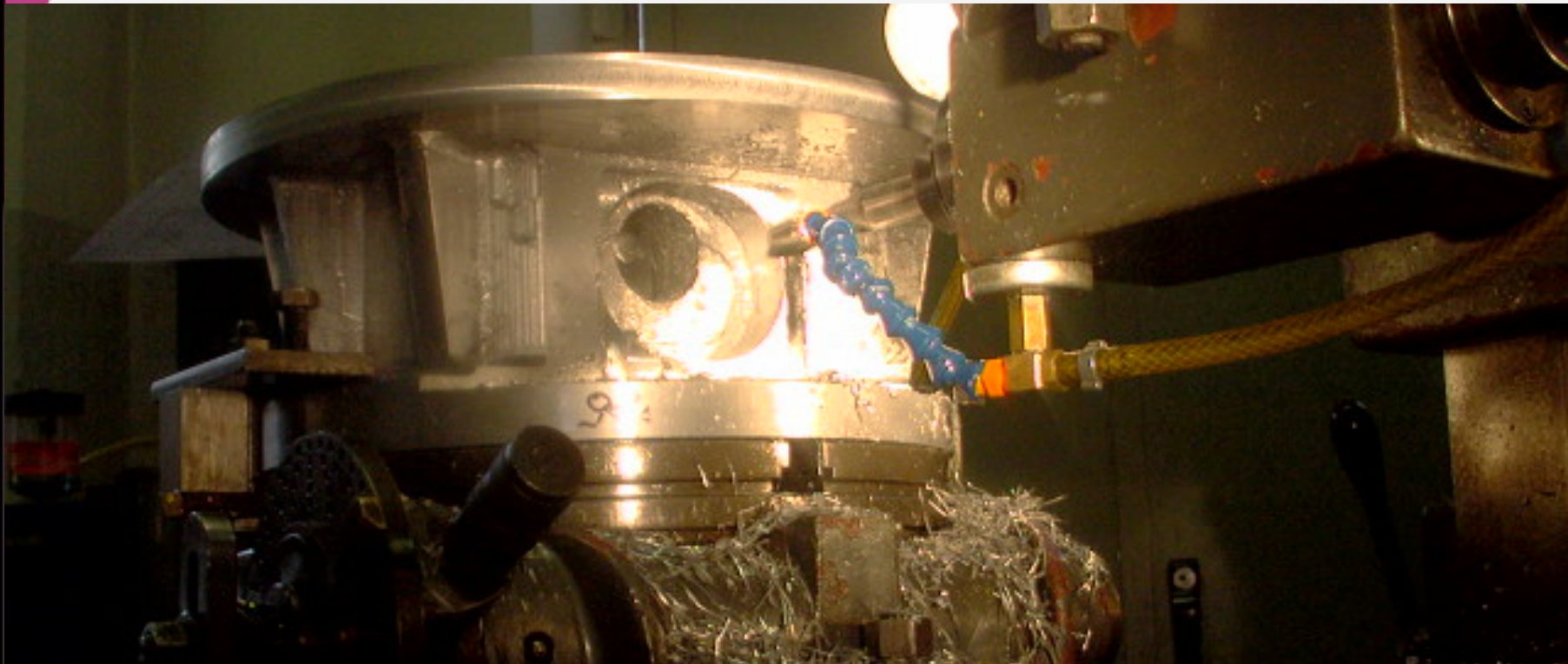


(1) And this yielded the Oscar prize for best movie
without actor/actress



R&D (3)

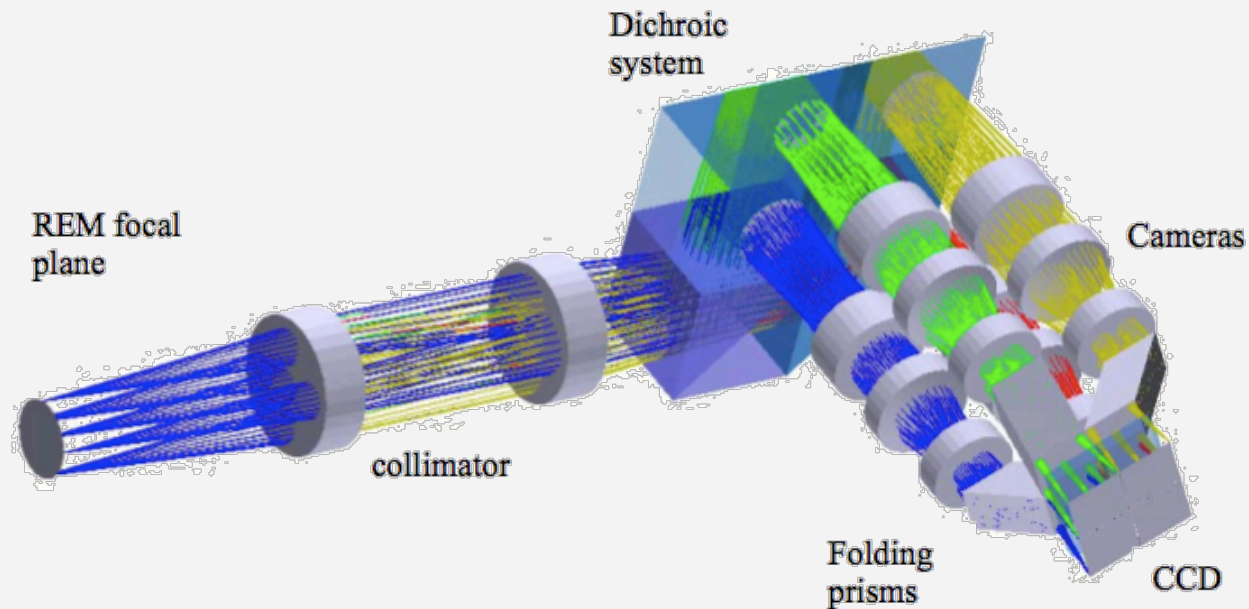
Being bored to dismount REMIR camera to access ROSS and pre-optics we want to change the whole visible camera and flange



(3) And we are now BUILDING it

R&D (3)

Being bored to dismount REMIR camera to access ROSS and pre-optics



(3) Leading to simultaneous 4-channel images.

2009

Emilio Molinari

AUTOMATIC FOR THE PEOPLE

R.E.M.



Thank you in the name of the dREM
team...

2009

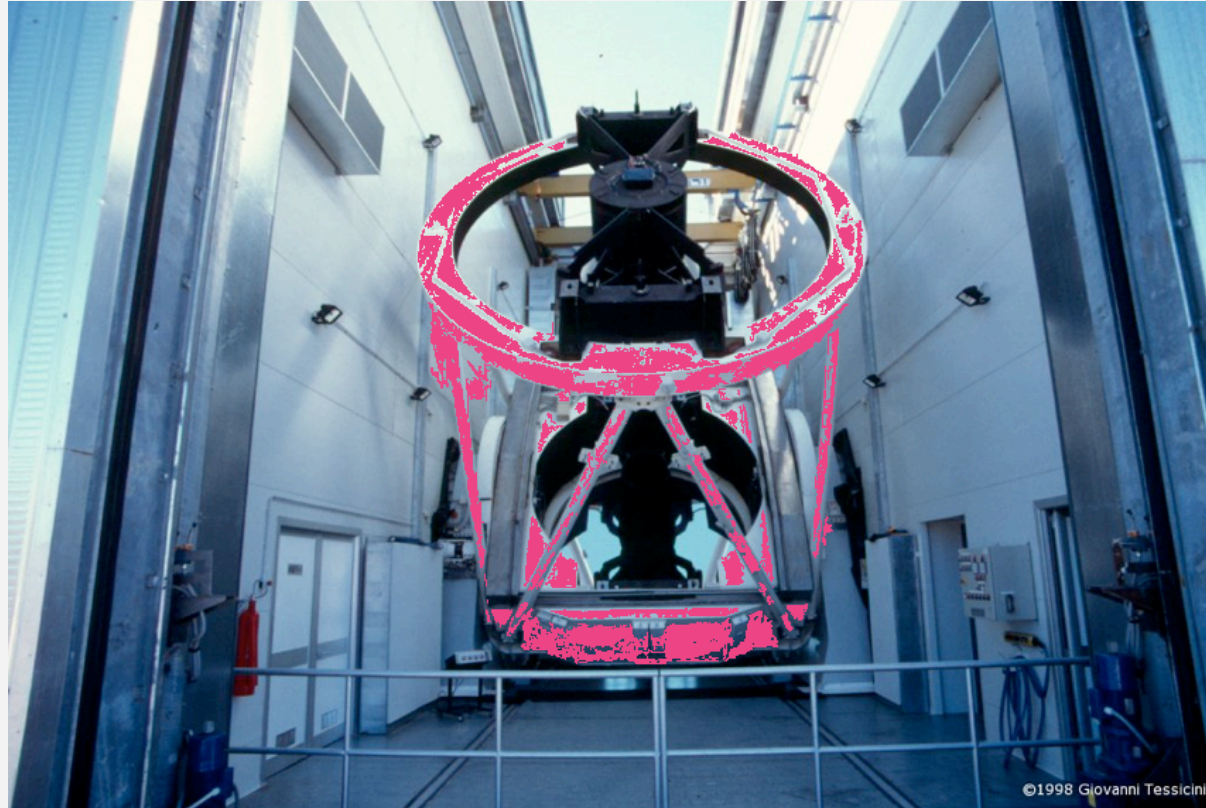
Emilio Molinari

REM

AUTOMATIC FOR THE PEOPLE

R.E.M.

... set towards new frontiers !



with a new music!

PAINT IT, PINK
THE ROLLING STONES

... 2009
Emilio Molinari

REM

AUTOMATIC FOR THE PEOPLE

R.E.M.

...aga 2009

Emilio Molinari

REM

AUTOMATIC FOR THE PEOPLE



...aga 2009
Emilio Molinari

REM