Picard routine - SODISM

Measurement modes

- Nominal mode (MNM)
- Distortion mode (MDO)
- Stellar Calibration mode (MES)
- Absorption mode (MAB)
- Night mode (MNT)
- Dark Current mode (DCO)
- Test mode (MTE)
- Degraded mode

Priority of the measurement modes

MDO, MES > MAB > MNT > MNM

Picard routine - SODISM

Nominal mode (MNM)

- Mode used by default
- Alternately a PVE 3 or a PVE 4 every minute
  - PVE 3 : Helio limb (31px) + Macropixel
  - PVE 4 : Macropixel
- Added to this:
  - Sequences of PVE's placed on ¼ orbit:
    - Full images and Limb images at each wavelength (215, 393, 535, 607 and 782 nm)
  - Particular images:
    - 3 DC images with different exposure times per day
    - 1 FFL image for a different wavelength every day

Picard routine - SODISM

Distortion mode (MDO)

- Rotation of the satellite about Sun-satellite axis
- Main objective : characterize the CCD and the optics
- 3 types of MDO have been programmed :
  - Classic MDO : 12 rotations of 30° (automatic prog.)
    - A typical distortion run would last about 936 minutes normally or 12 orbits in the case of eclipses
  - MDO double sequence (manual/automatic prog.)
  - MDO double orbit (manual prog.)

Picard routine - SODISM

Stellar calibration mode (MES)

- 180° rotation of the satellite (away from the Sun)
- Different star coordinates associated to each month of the year
- Main objective: calibrate the scale factor of the instrument
- Classic stellar mode: 2 thumbnails of 768 px are captured
- Manually programmed MES as well as automatically programmed MES

Picard routine - SODISM

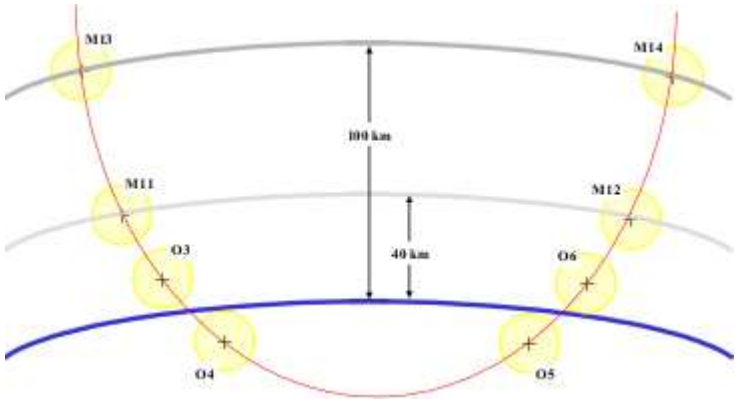
Absorption mode (MAB)

- Observation of the Sun through the atmosphere (100 to 40 km and 40 km to 0 km)
- Period of the year: from November to February
- Programmed if the duration is > 1 min (configurable)
- Measurements are interrupted as the satellite crosses the penumbra
- Full images are taken during MAB mode at every wavelength
- Wavelengths are cycled from one orbit to the next
- MAB and MNT modes are mutually exclusive

Picard routine - SODISM

Night mode (MNT)

- The satellite enters the eclipse zone (events O3 - O6)
- DC Images are taken
- MAB mode has priority over MNT mode
- Nigth mode has been 'removed' from the new routine



Picard routine - SODISM

Evolutions of the Picard routine: MNM

- Only 2 modes (MNM and MAB) have been impacted by the new 'temporary' routine ==> modification of the CMSP configuration for the automatic programming
- For the other modes, manual operations are most often requested (example : stellar operations)
- The modifications of the routine described below concern only those made since the REVEX

Picard routine - SODISM

Evolutions of the Picard routine: MNM

- 07/12/11 :
  - Removal of PVE 8 (=PVE 3 + RAZ)
- 25/02/12 :
  - PVE 11 (DL + RS at 215 nm) has been replaced by PVE 13 (RS 215 nm)
  - The exposure time at 215 nm went from 7 to 16 s.
- 31/03/12 :
  - A new 'temporary' routine has been defined
  - The Helio limb width has gone from 22px to 31px (data volume increased)
  - PVE 45 (LCO) has been removed (from the routine)
  - A PVE 13 (215 nm) is now taken every 14 orbits instead of every 4 orbits
  - PVE 0 has been removed (this served as a buffer, no image taken)
  - Data download time has increased from 91 min to 100 min per day

Picard routine - SODISM

Evolutions of the Picard routine: MNM

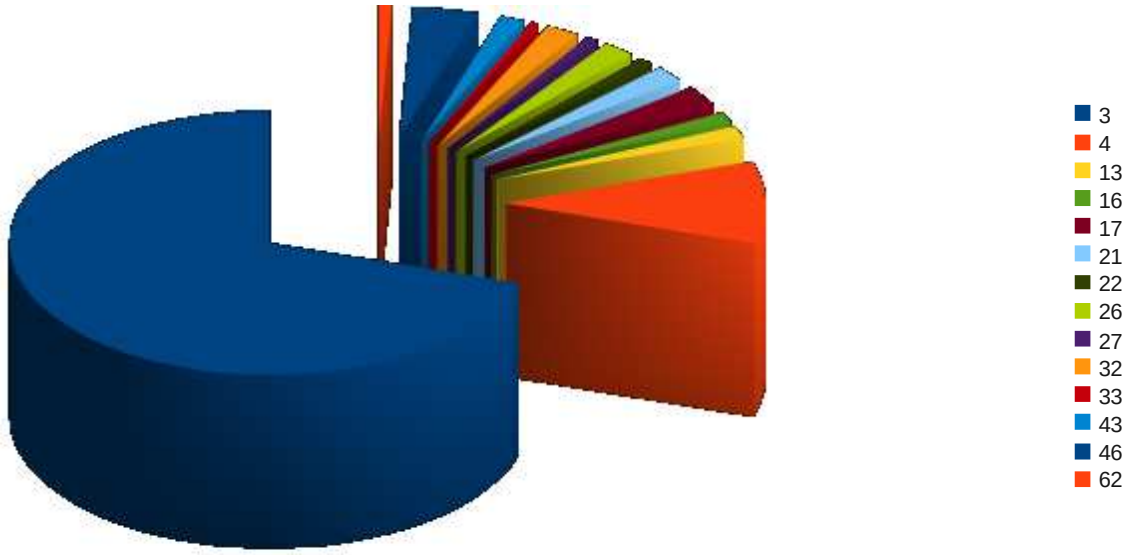
25/10/2011 03:00 – 26/10/2011 03:00		
N°PVE	Nbr/jour	Nbr/orbite
0	24	1.67
3	694	48.19
4	512	35.56
8	26	1.81
11	4	0.28
13	0	0.00
16	14	0.97
17	10	0.69
21	26	1.81
22	4	0.28
26	26	1.81
27	4	0.28
32	26	1.81
33	4	0.28
37	0	0.00
39	1	0.07
41	0	0.00
43	0	0.00
45	58	4.03
46	3	0.21
62	4	0.28

01/04/2012 03:00 – 02/04/2012 03:00		
N°PVE	Nbr/jour	Nbr/orbite
0	0	0.00
3	719	49.93
4	608	42.22
8	0	0.00
11	0	0.00
13	1	0.07
16	14	0.97
17	11	0.76
21	22	1.53
22	4	0.28
26	23	1.60
27	3	0.21
32	24	1.67
33	2	0.14
37	0	0.00
39	0	0.00
41	0	0.00
43	1	0.07
45	0	0.00
46	3	0.21
62	4	0.28

Picard routine - SODISM

Evolutions of the Picard routine: MNM

Volume of PVE's per day



Picard routine - SODISM

Evolutions of the Picard routine: MAB

- 24/12/11 :
  - Modifications of MAB mode
    - MAB : M13-O3/M14 and O6-M14
    - O3-O6 as buffer (PVE 0 are taken)
    - 3 full images from M13-O3/M14 and 3 full images from O6-M14
    - No more buffer zone before the M13 event
    - No more MNT mode
    - DL images have been replaced by full images
    - Note : before this modification it was mainly MNT mode
- 28/01/12 :
  - Re-definition of the MAB mode
    - 12 full images from M13 to O3/M14 and 3 full images from O6 to M14

Picard routine - SODISM

Evolutions of the Picard routine: MAB

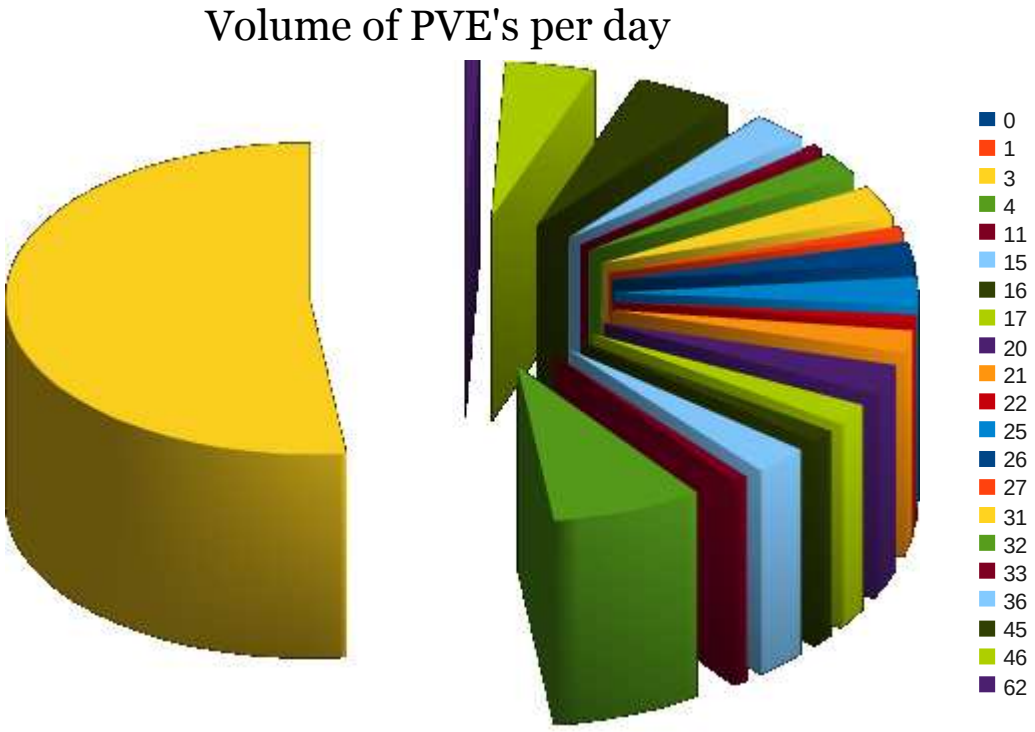
11/11/2011 03:00 – 11/11/2011 03:00		
N°PVE	Nbr/jour	Nbr/orbite
0	89	6.18
1	30	2.08
3	630	43.75
4	433	30.07
8	12	0.83
11	3	0.21
12	11	0.76
15	0	0.00
16	28	1.94
17	10	0.69
20	0	0.00
21	39	2.71
22	4	0.28
25	0	0.00
26	25	1.74
27	4	0.28
28	14	0.97
31	0	0.00
32	38	2.64
33	3	0.21
36	0	0.00
37	1	0.07
39	0	0.00
41	0	0.00
43	0	0.00
44	0	0.00
45	59	4.10
46	3	0.21
62	4	0.28

22/12/2011 03:00 – 23/12/2011 03:00		
N°PVE	Nbr/jour	Nbr/orbite
0	227	15.76
1	0	0.00
3	682	47.36
4	281	19.51
8	0	0.00
11	3	0.21
12	0	0.00
15	0	0.00
16	8	0.56
17	9	0.63
20	0	0.00
21	15	1.04
22	2	0.14
25	0	0.00
26	14	0.97
27	3	0.21
28	0	0.00
31	0	0.00
32	15	1.04
33	2	0.14
36	0	0.00
37	0	0.00
39	0	0.00
41	0	0.00
43	1	0.07
44	0	0.00
45	172	11.94
46	3	0.21
62	3	0.21

28/01/2012 03:00 – 29/01/2012 03:00		
N°PVE	Nbr/jour	Nbr/orbite
0	103	7.15
1	60	4.17
3	605	42.01
4	423	29.38
8	0	0.00
11	3	0.21
12	0	0.00
15	17	1.18
16	14	0.97
17	8	0.56
20	18	1.25
21	23	1.60
22	3	0.21
25	17	1.18
26	23	1.60
27	3	0.21
28	0	0.00
31	19	1.32
32	24	1.67
33	2	0.14
36	18	1.25
37	0	0.00
39	0	0.00
41	0	0.00
43	0	0.00
44	0	0.00
45	51	3.54
46	3	0.21
62	3	0.21

Picard routine - SODISM

Evolutions of the Picard routine: MAB



Picard routine – SOVAP and PREMOS

SOVAP:

- A calibration is done once a month (every 28 days)
- No evolution since the REVEX

PREMOS :

- A FRB calibration is done once a week during 2 min. (Monday)
- A PMO6B calibration is done every two weeks during 100 min. (on Monday)
- Every day, there is a synchronization between PREMOS and SODISM (full image 535 or 782 nm) ==> managed by the CMSP
- Synchronization with SODISM when it takes a full image at 215 or 607 nm ==> managed by the LV
- When there is an exotic mode (MAB, MNT, ...) PREMOS switches to night mode (no measurement)
- No evolution since the REVEX