PROBA2 ONTWIKKELING, LANCERING & EXPLOITATIE

Anik De Groof & PROBA2 Science Center
ESA ☀ Koninklijke Sterrenwacht van België

seminarie Werkgroep Aardrijkskunde Brabant ☀ Heilig Hart Heverlee ☀ 28 september 2010

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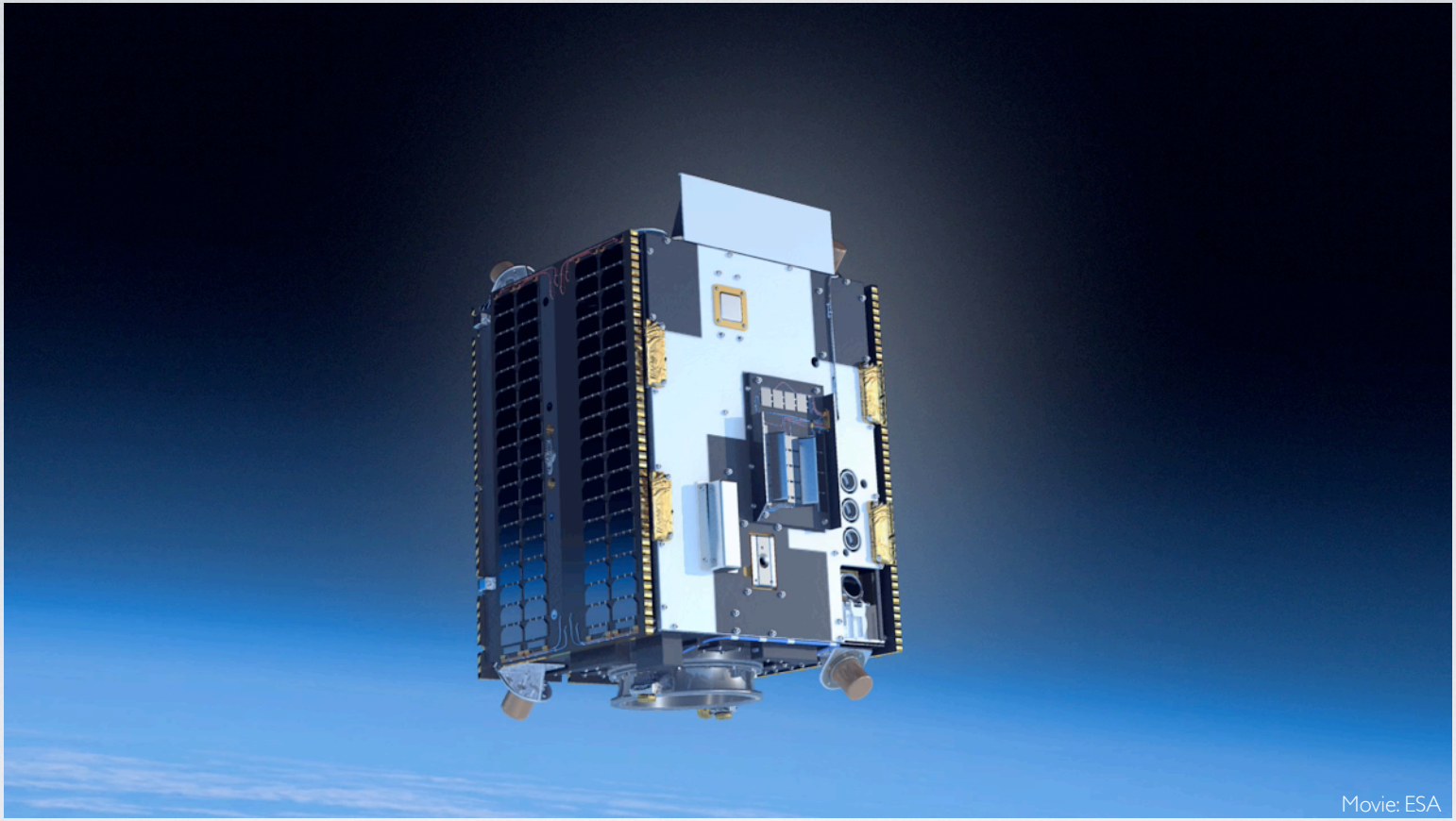
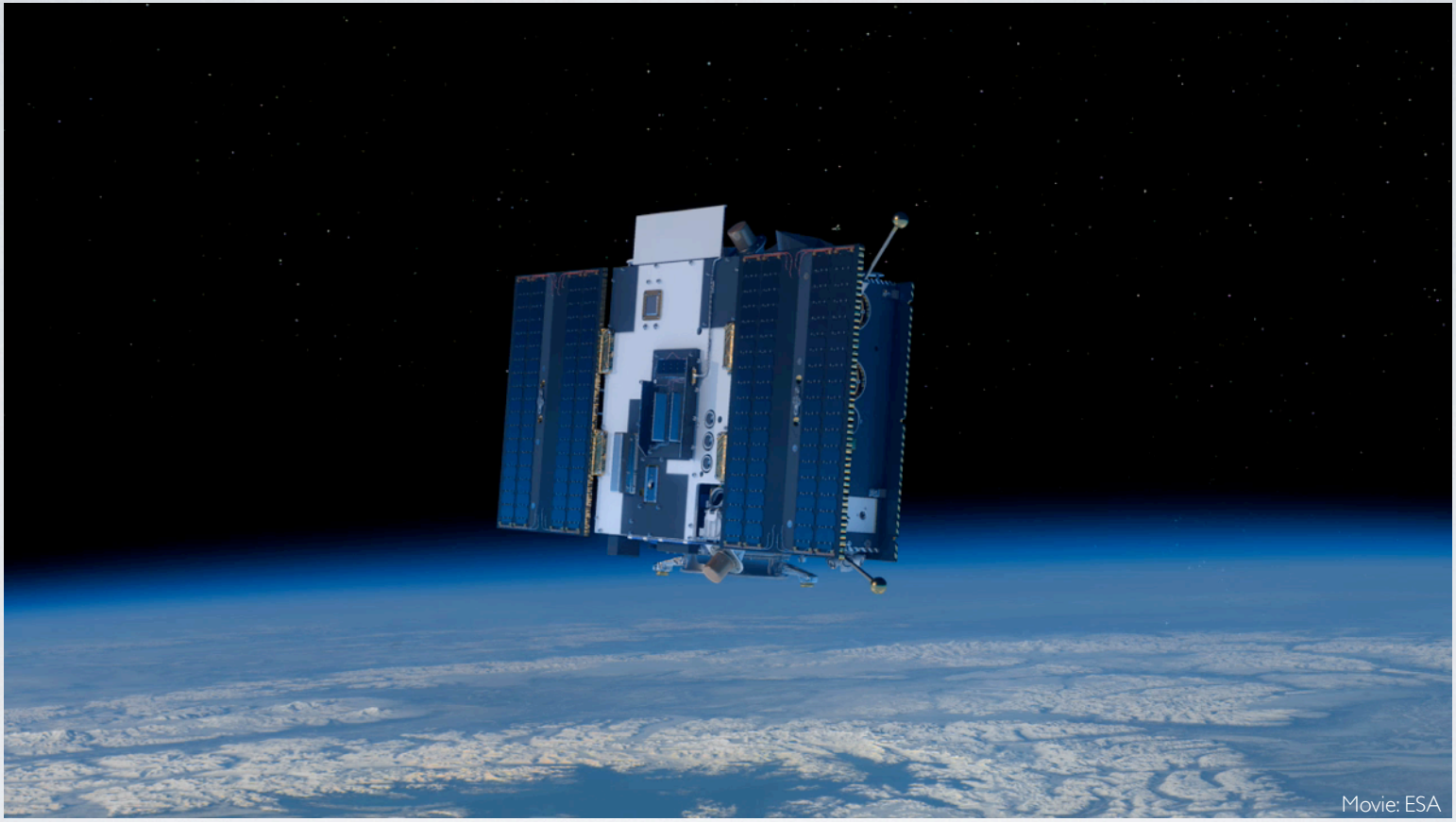
MENU

- PROBA2: "Belgische" ESA satelliet met dubbele functie
- PROBA2's satellietbaan
- Satelliet binnenstebuiten
- Focus op SWAP & LYRA
- "PROBA2 phone home"
- Klaar voor de lancering
- PROBA2's babymaanden



ESA TECHNOLOGISCHE MISSIE

4 innovatieve instrumenten: SWAP, LYRA, TPMU, DSLP
17 technologische experimenten
gelanceerd in nov 2009 ☀ 'in-orbit' demonstratie

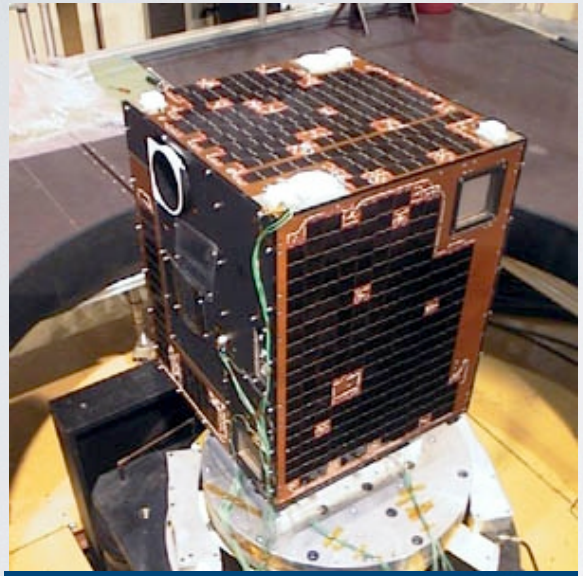


ESA WETENSCHAPSMISSIE

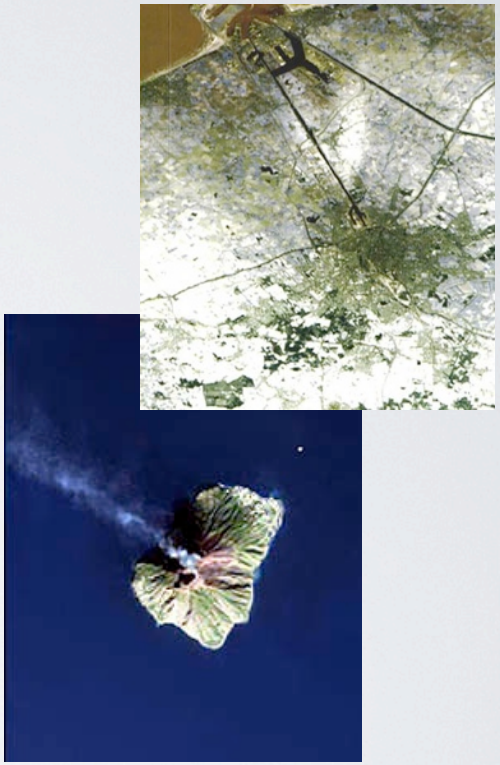
observatie zon in (extreem) ultraviolet
wetenschappelijk in gebruik sinds maart 2010
voornamelijk gebouwd en gefinancierd in België

PROJECT FOR ONBOARD AUTONOMY

PROBA1 (2001-...)



VERHAERT SPACE
A QinetiQ Company

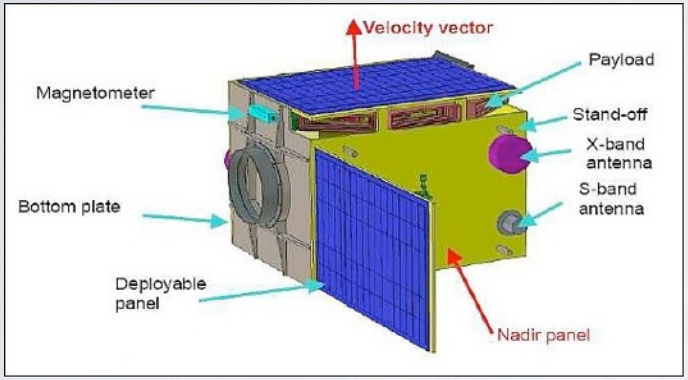


klein en vernieuwend

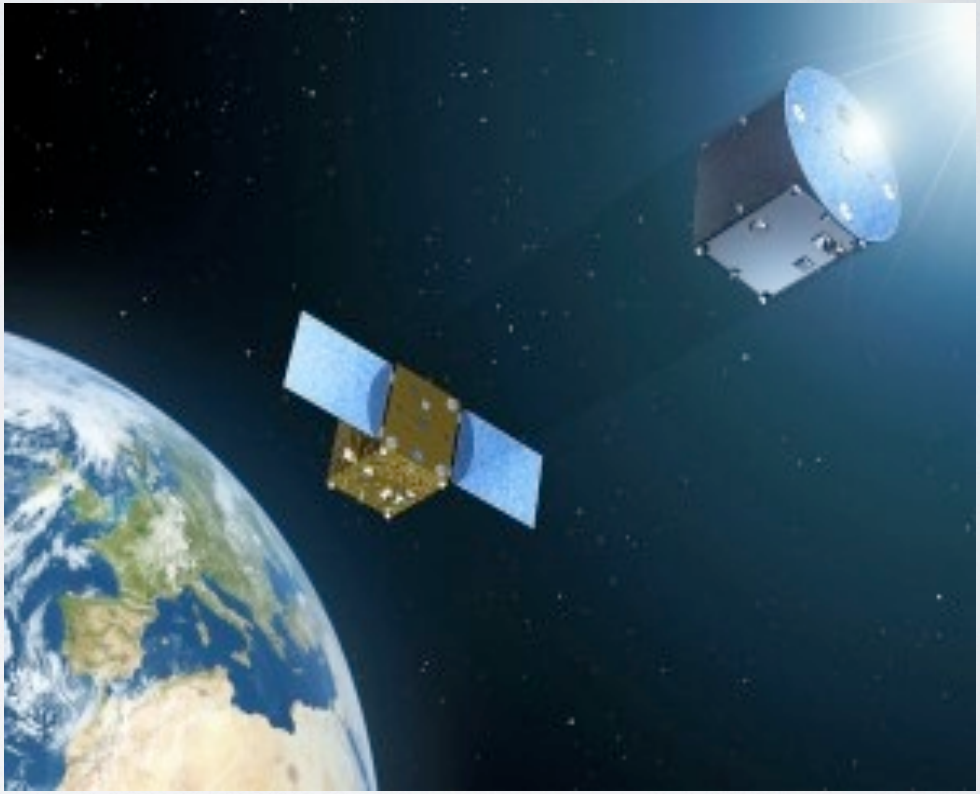
goedkoop

automatisatie

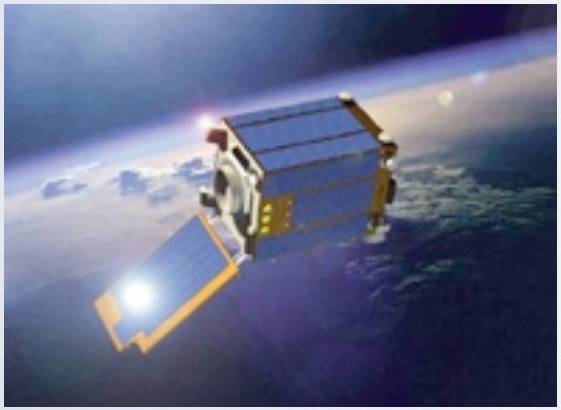
DE PROBA FAMILIE



PROBA V: lancering 2012?

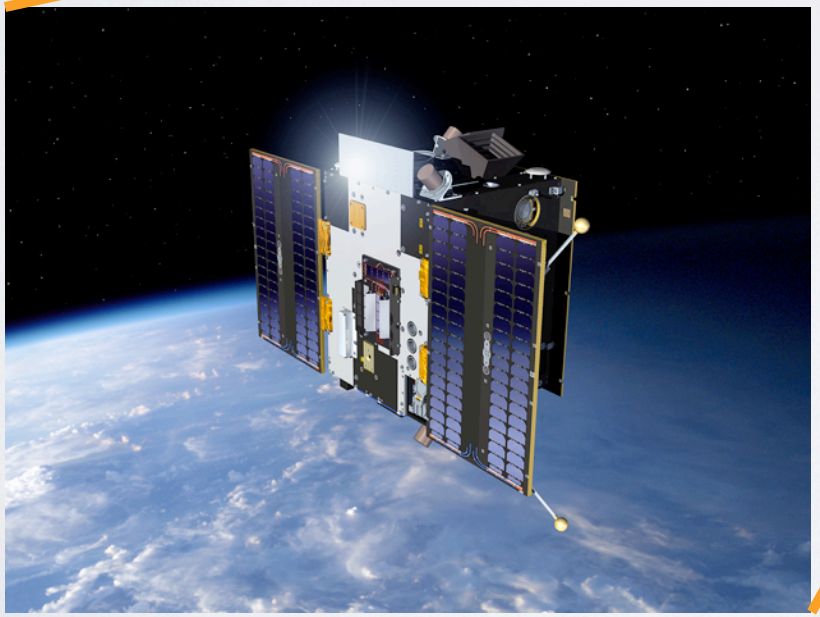


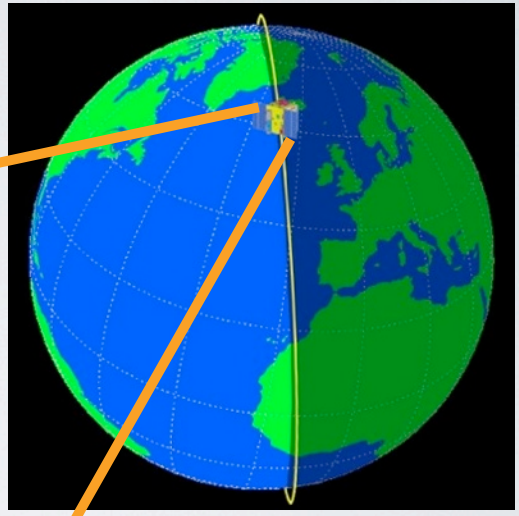
PROBA 3: lancering 2015?



PROBA ALTIUS

PROBA2

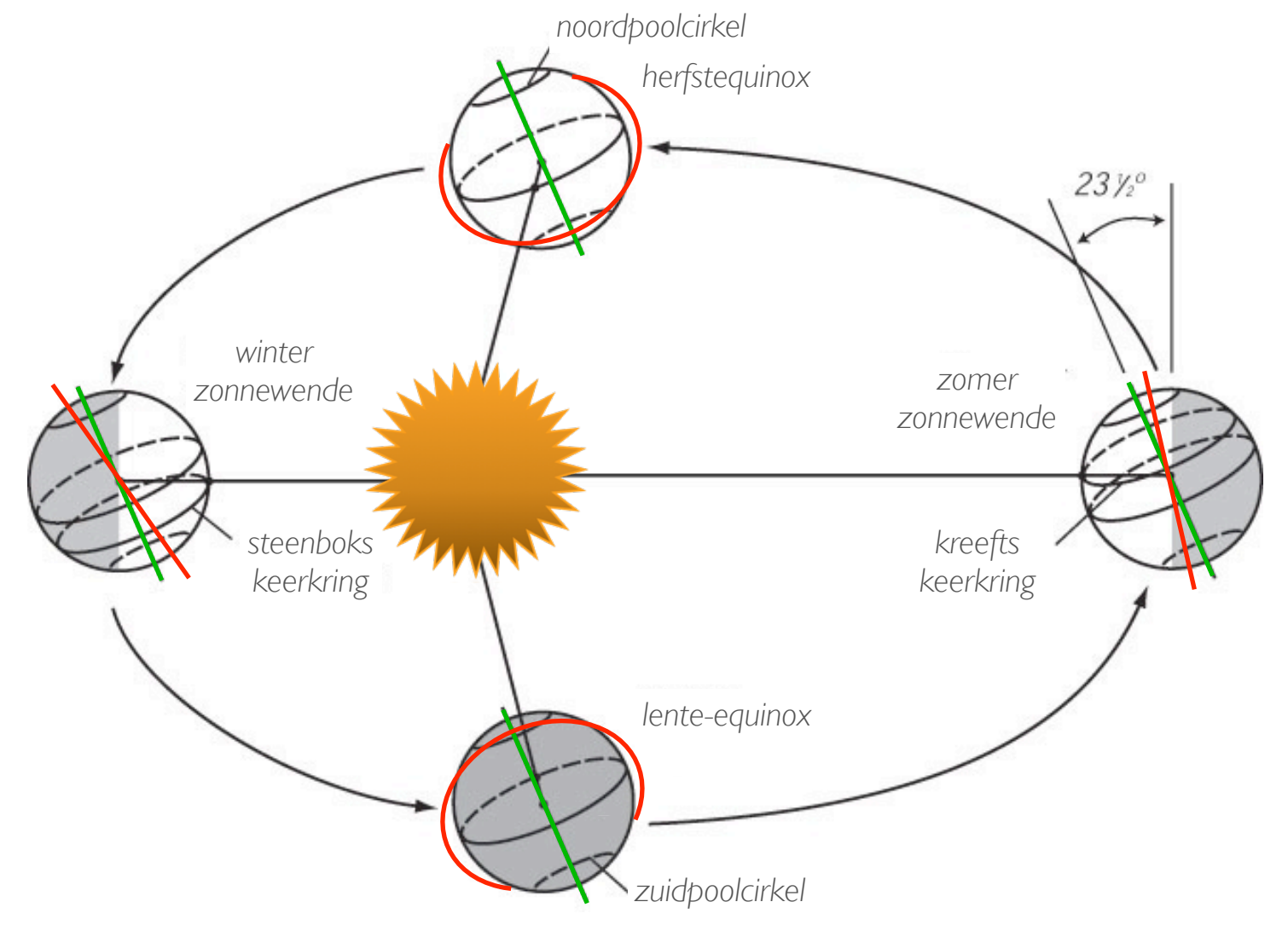




725 km hoogte

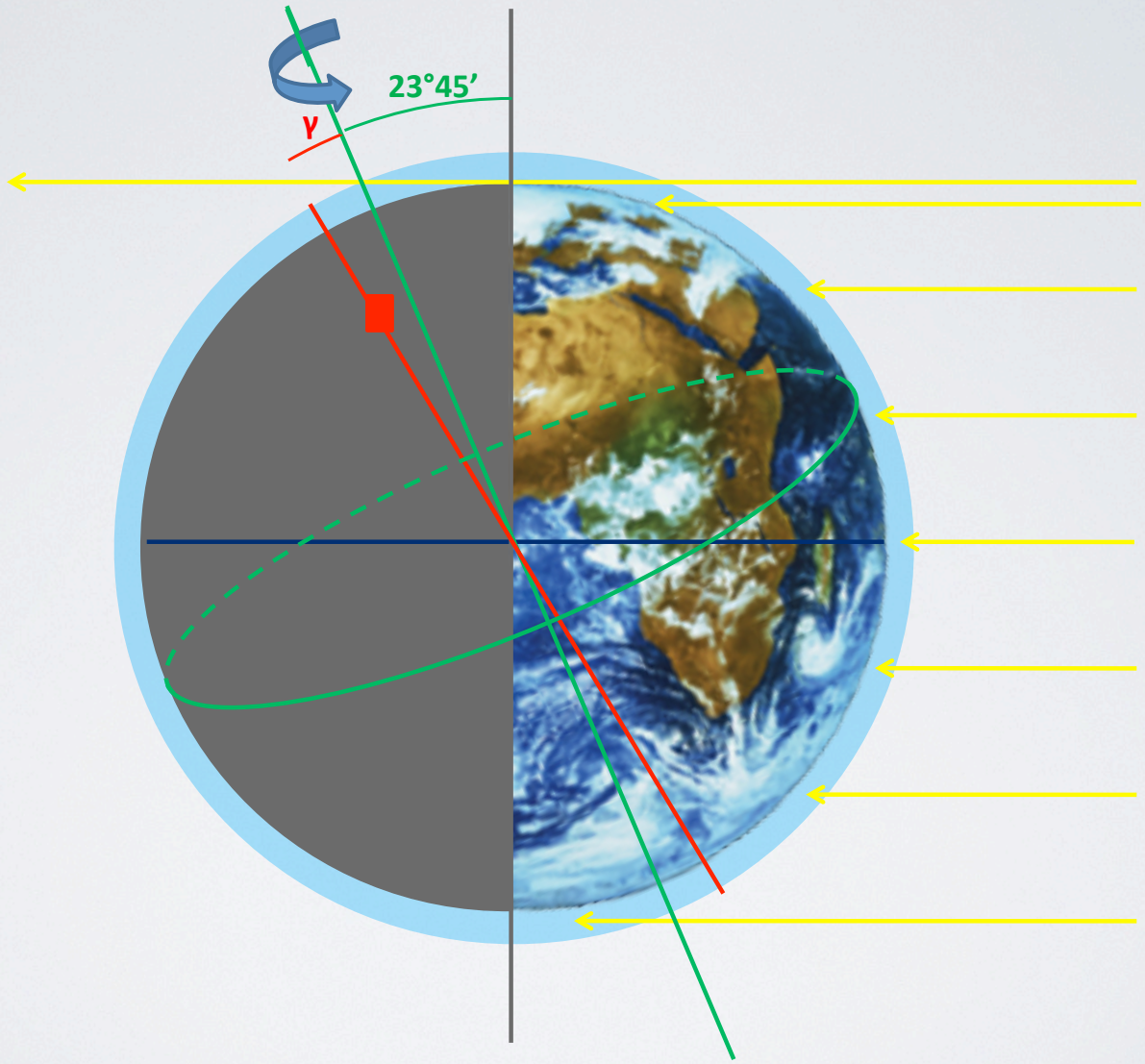
zon-synchrone baan
(“dawn-dusk”)

PROBA2'S BAAN



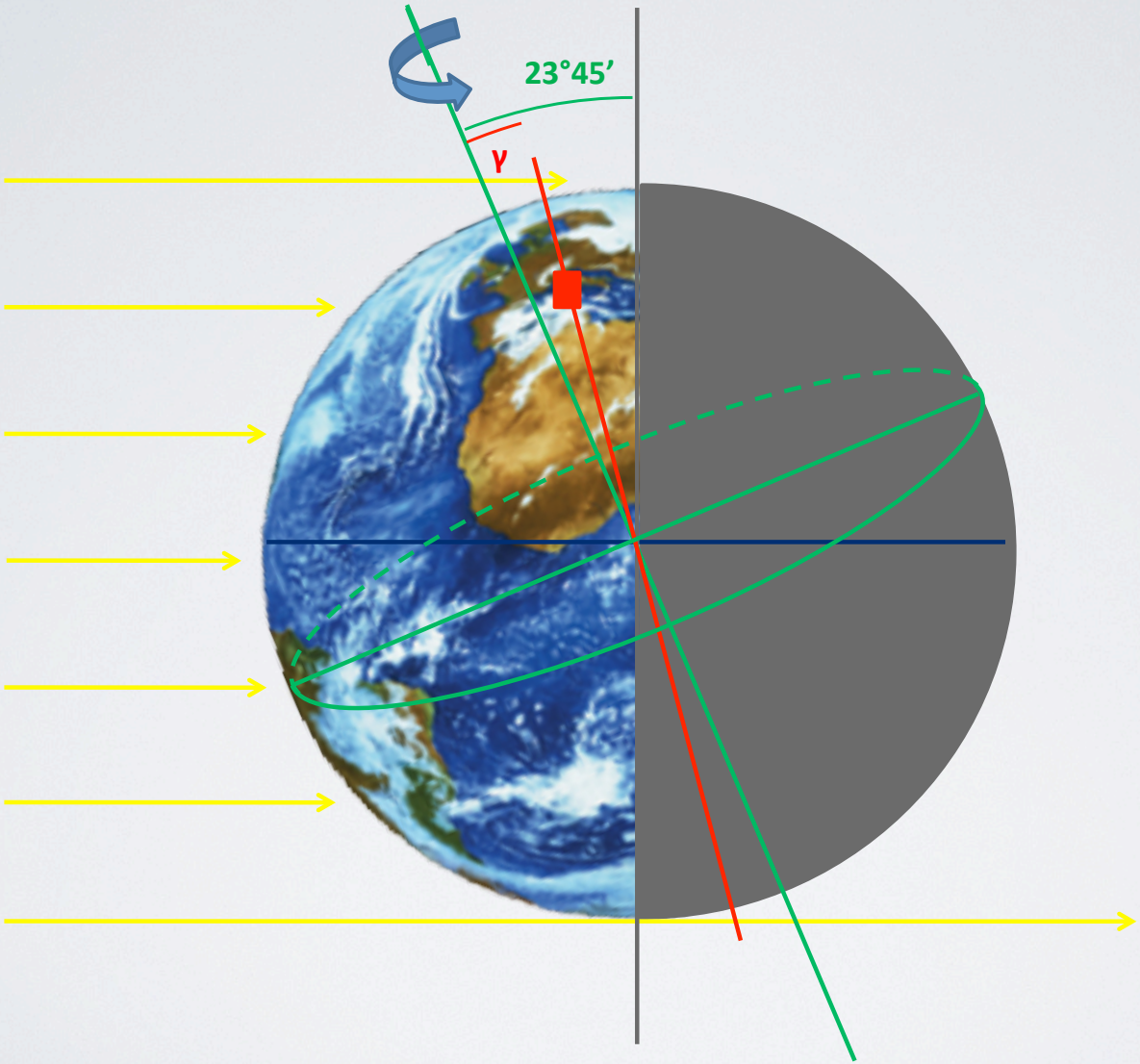
hoogte (725km) & inclinatie (98°) houden baan boven dag-nachtgrens

WINTERZONNEWENDE



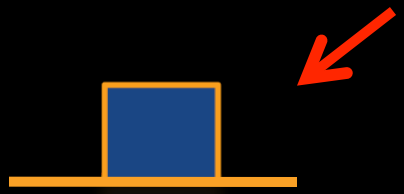
zonsverduistering door de aarde (18' per omwenteling)

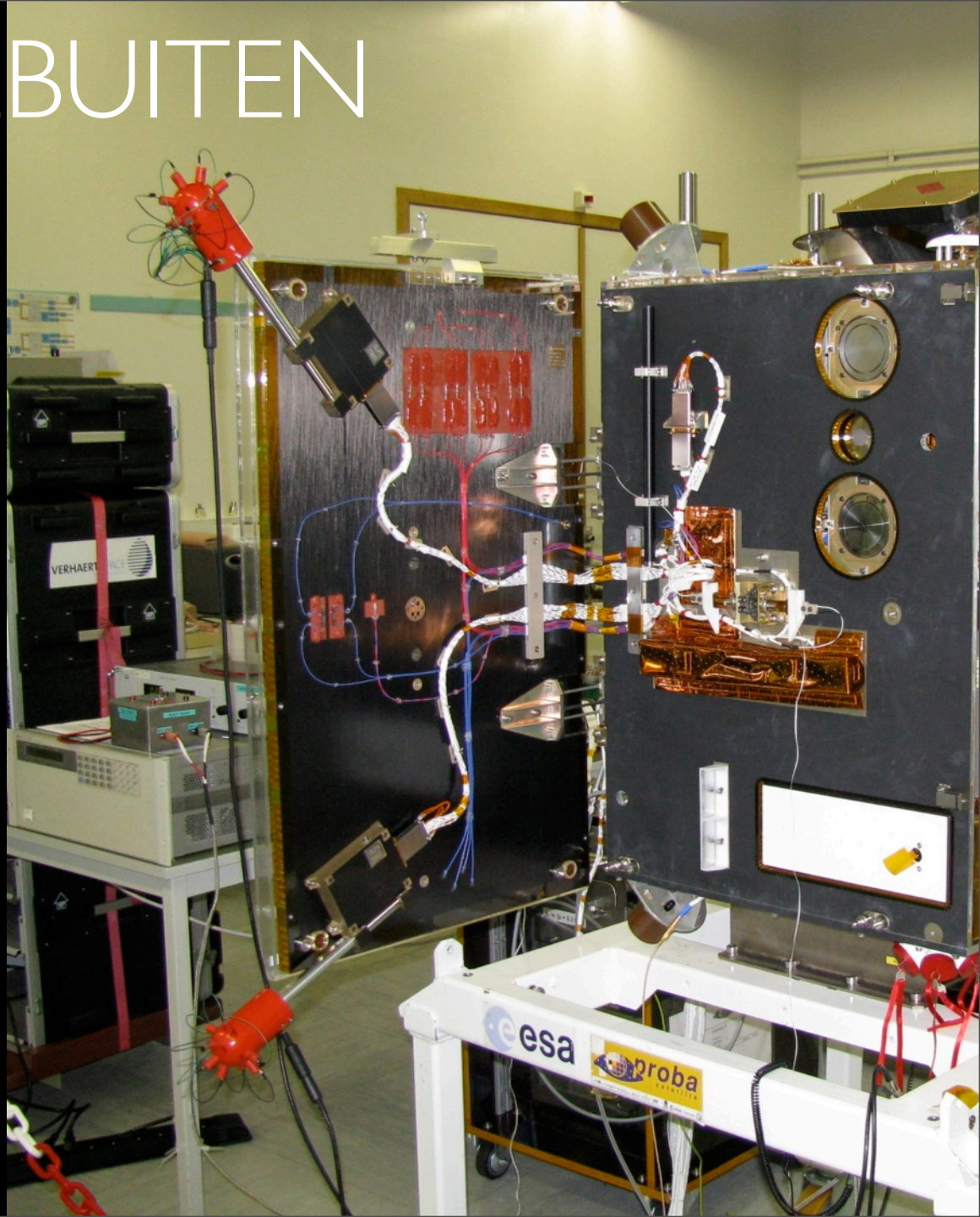
ZOMERZONNEWENDE

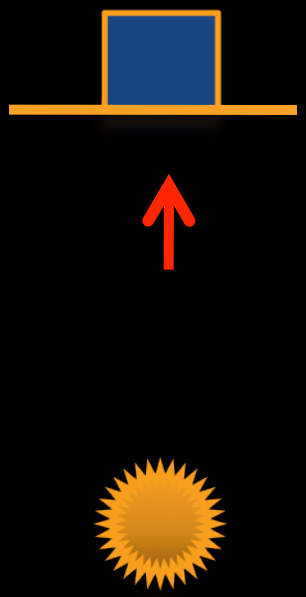


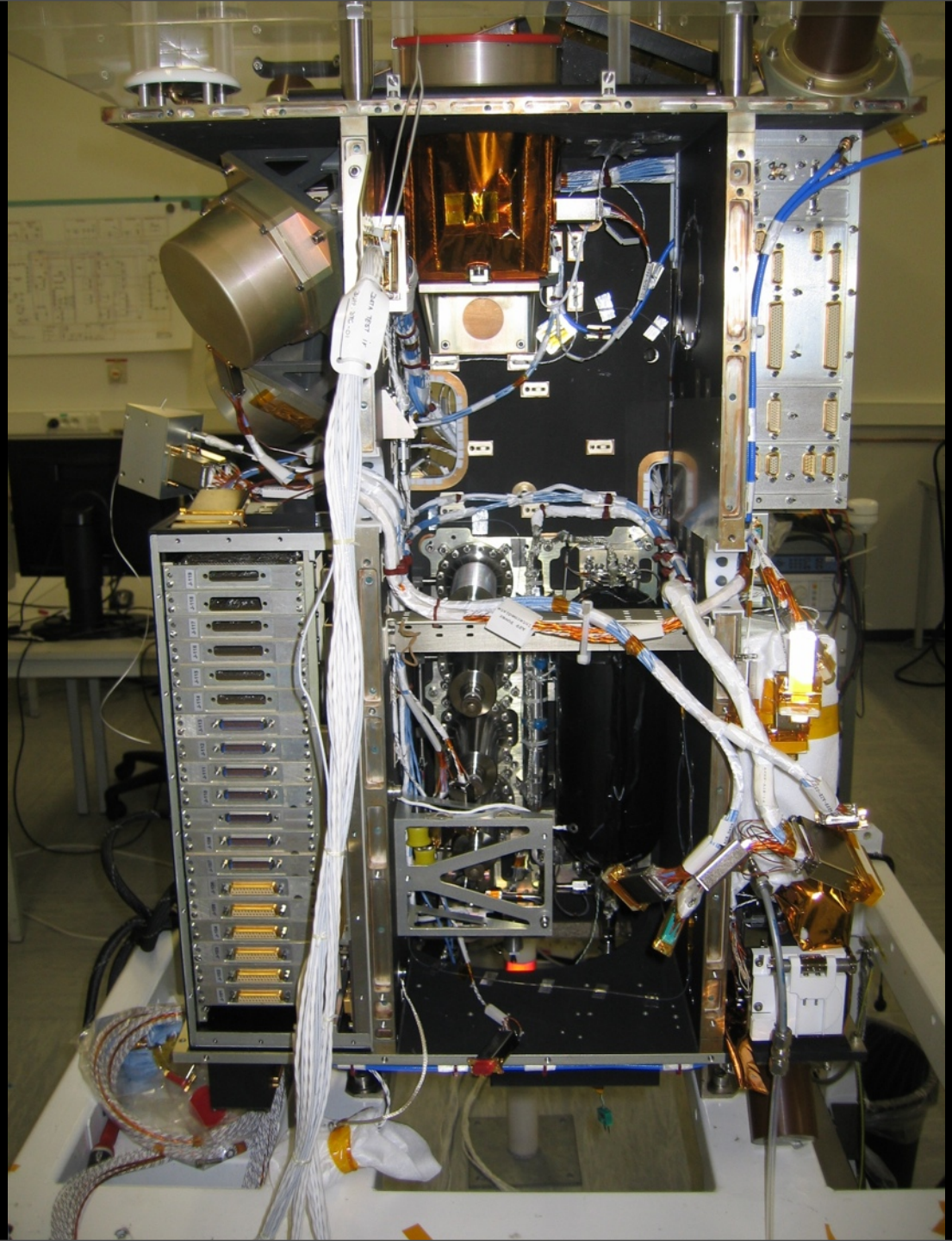
geen zonsverduistering in de zomer

BINNENSTEBUITEN

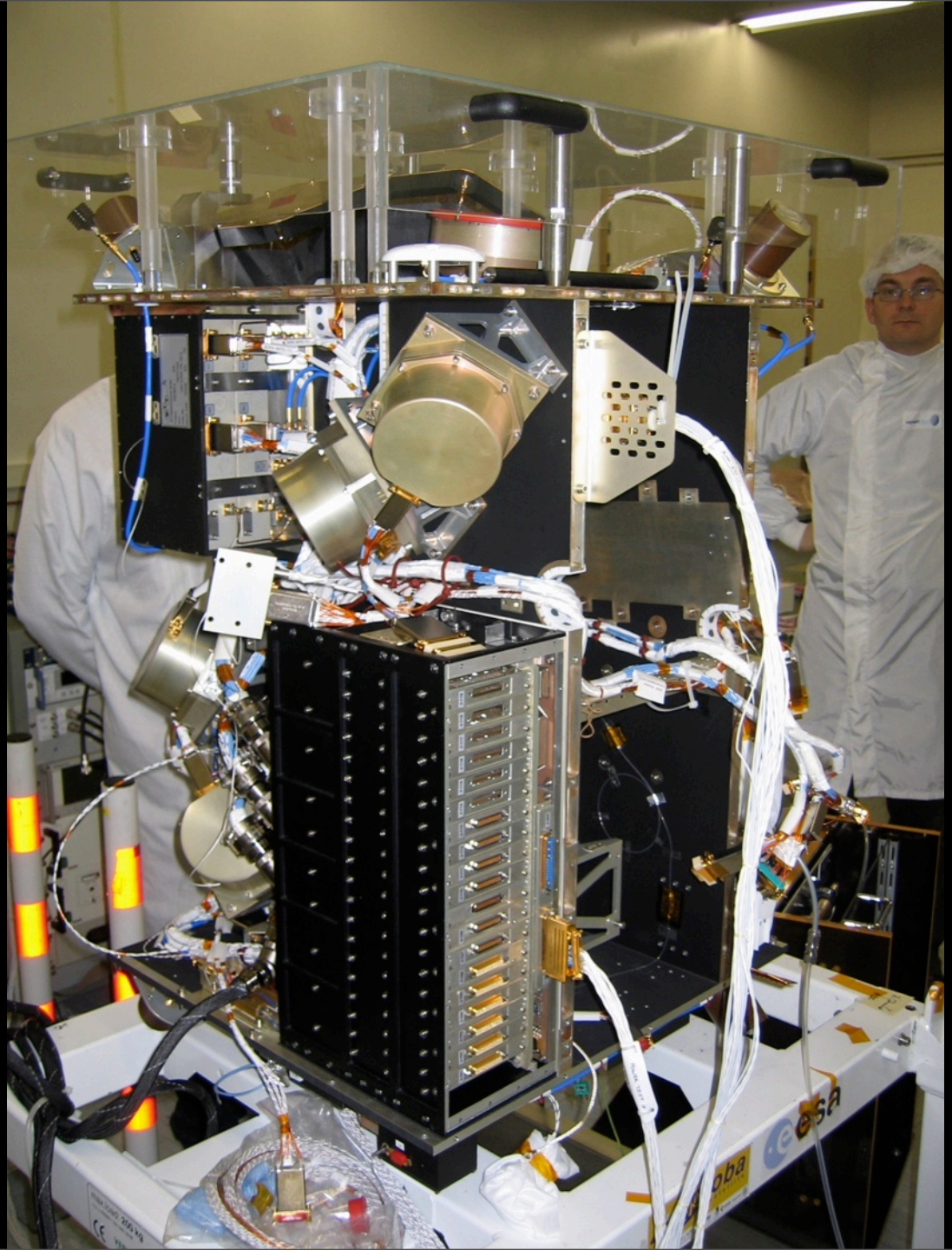


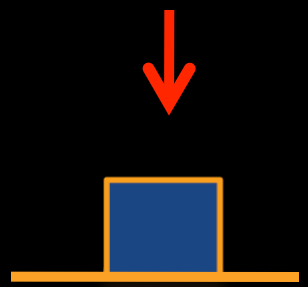


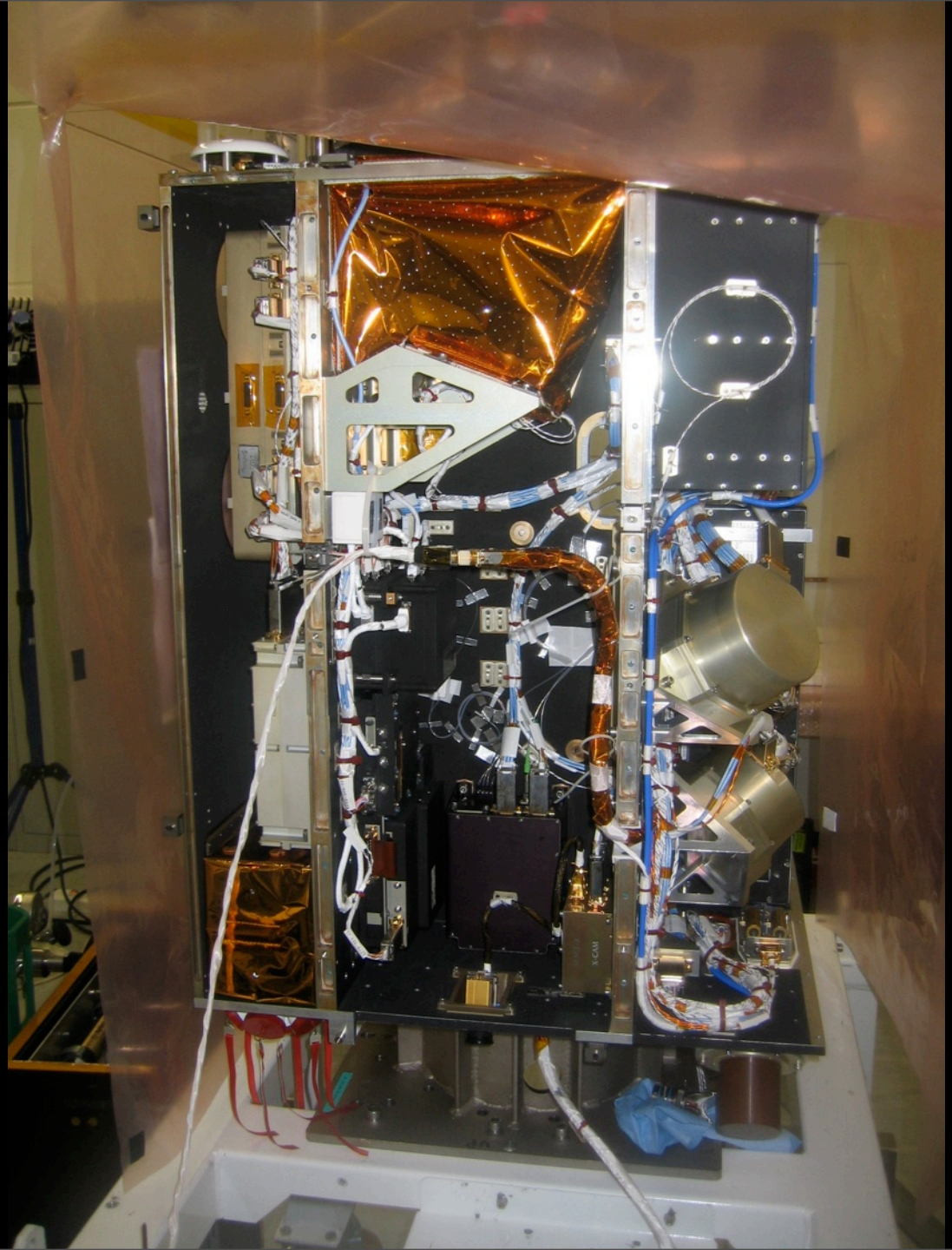




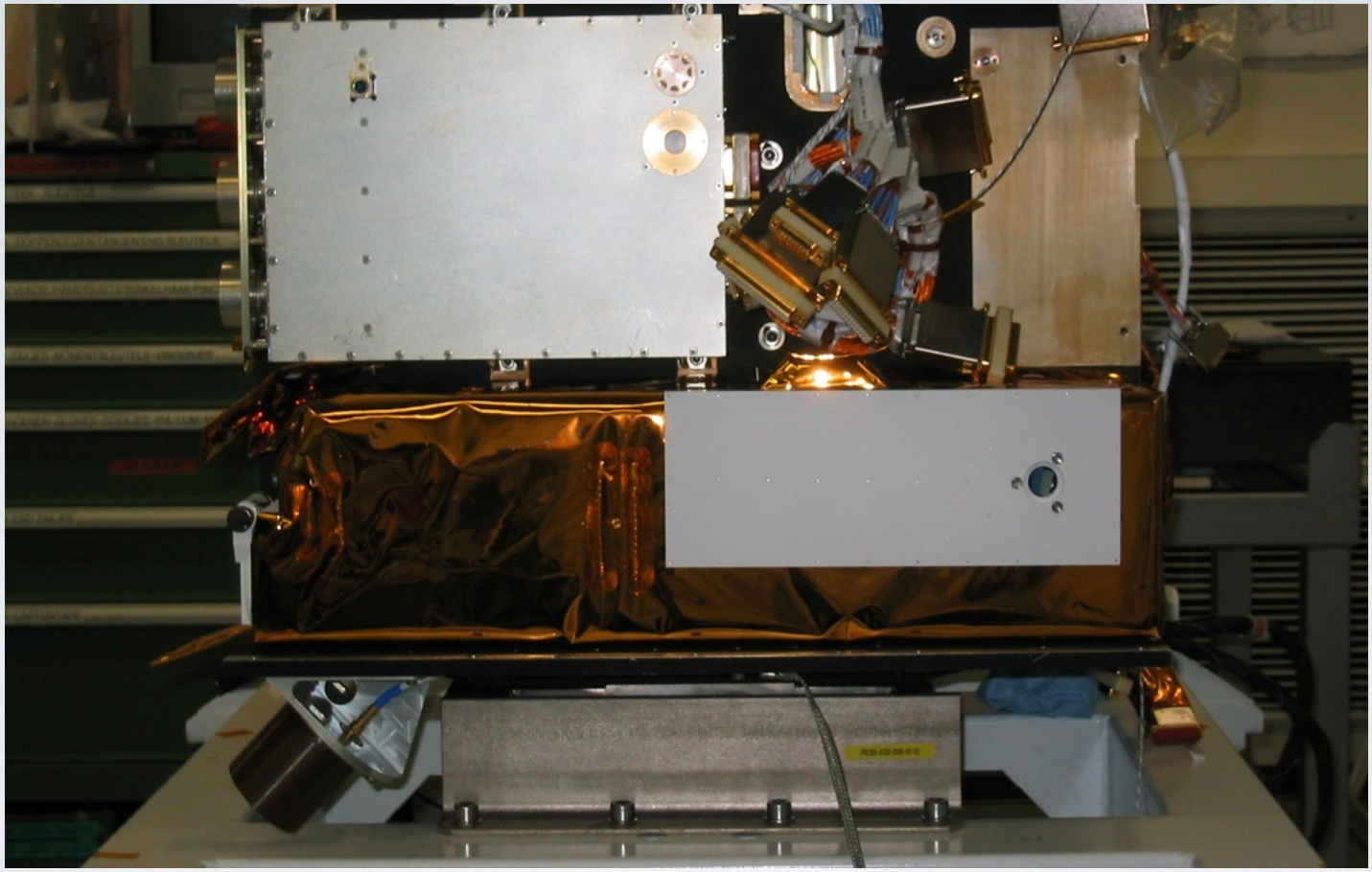
proba
esa
esa
proba


esa




X-CAM

SWAP

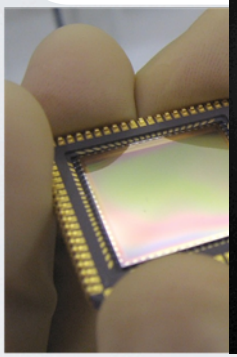


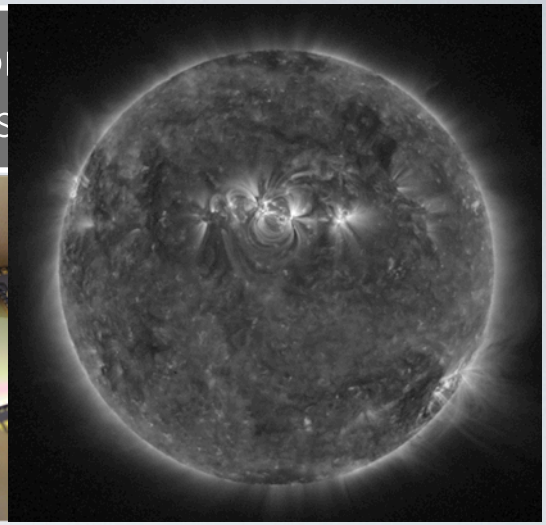
Sun **W**atcher with **A**PS sensor and image **P**rocessing

SWAP

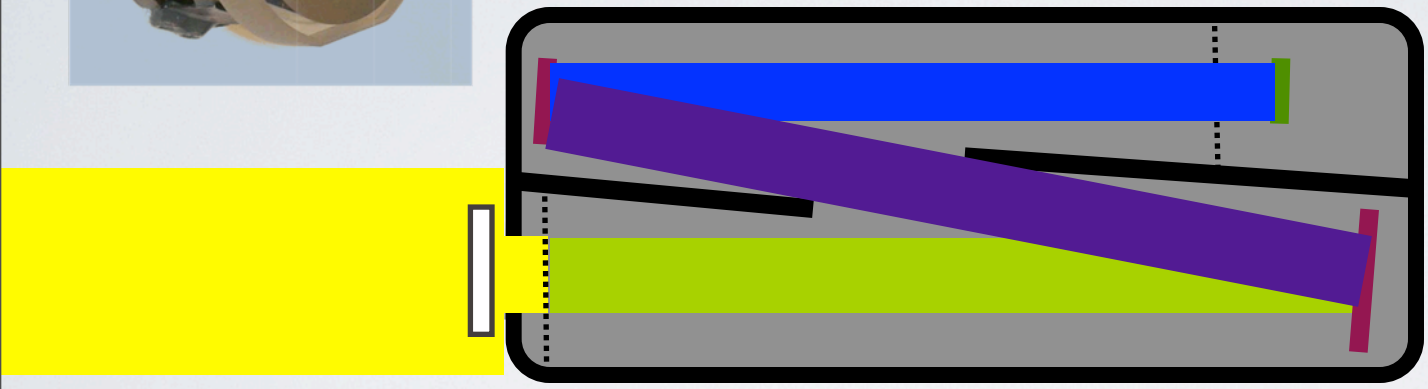
SWAP

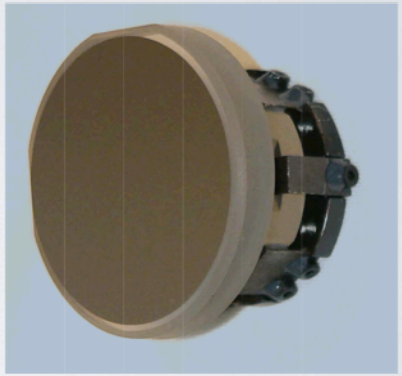
Fillfactor
Cypress

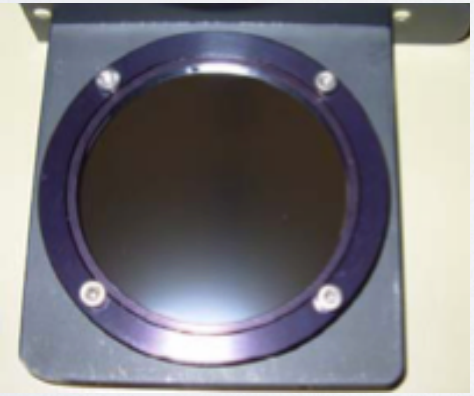




AMOS (B)

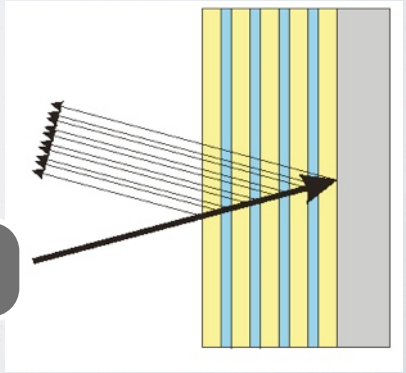




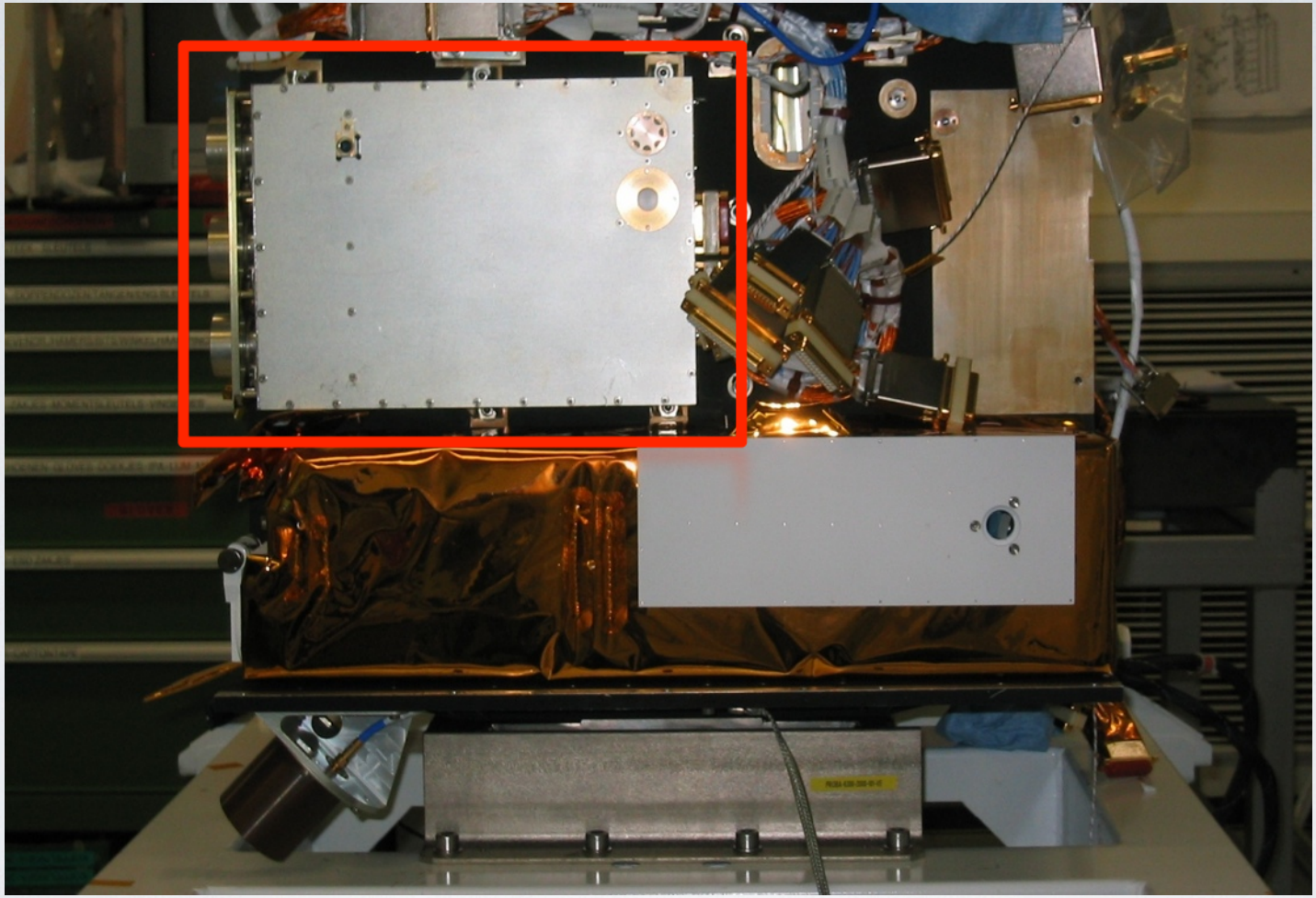


CSL (B)

IOTA (F)

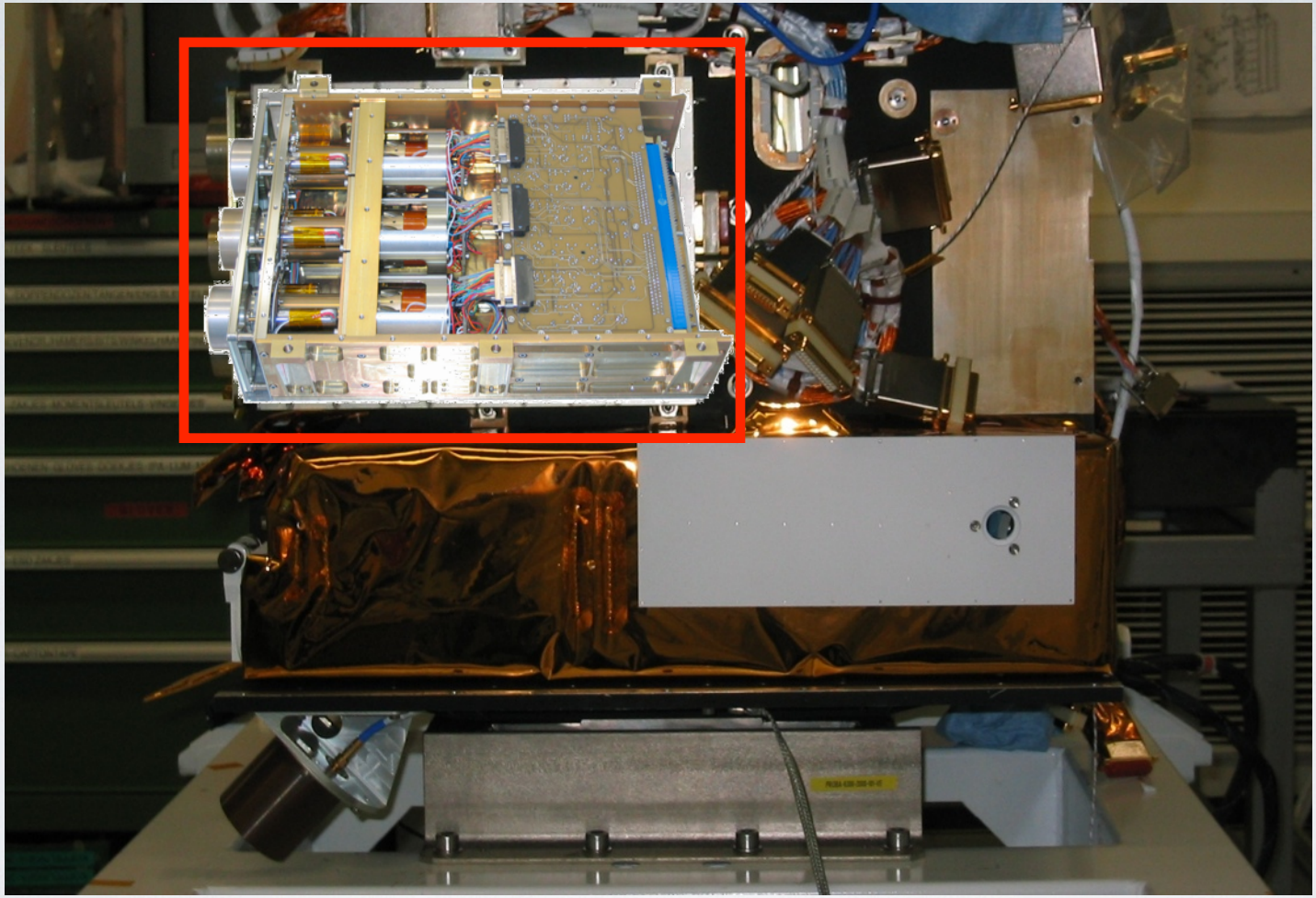


LYRA



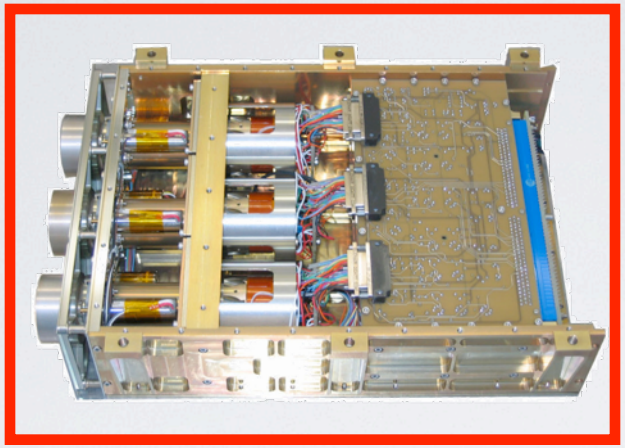
LYman Alpha **RA**diometer

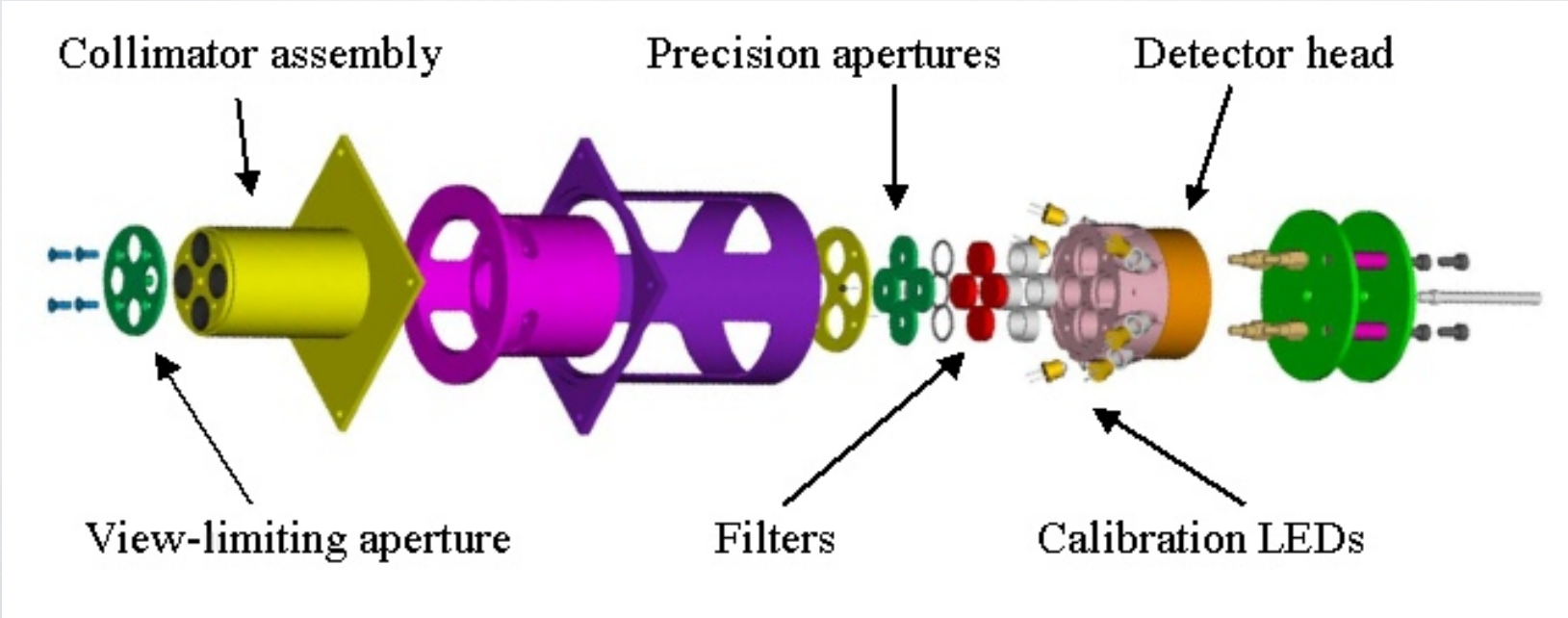
LYRA



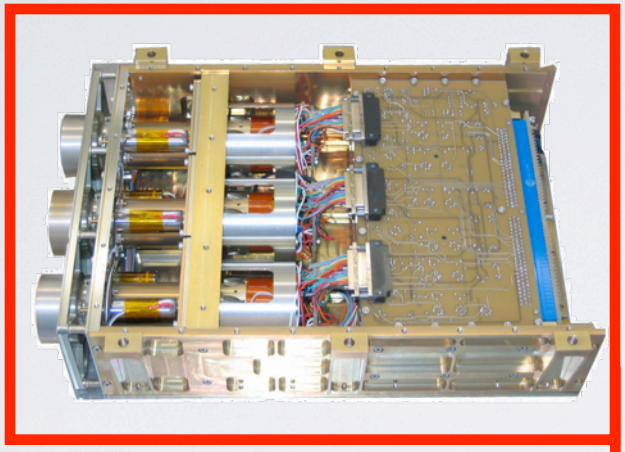
LYman Alpha **RA**diometer

LYRA

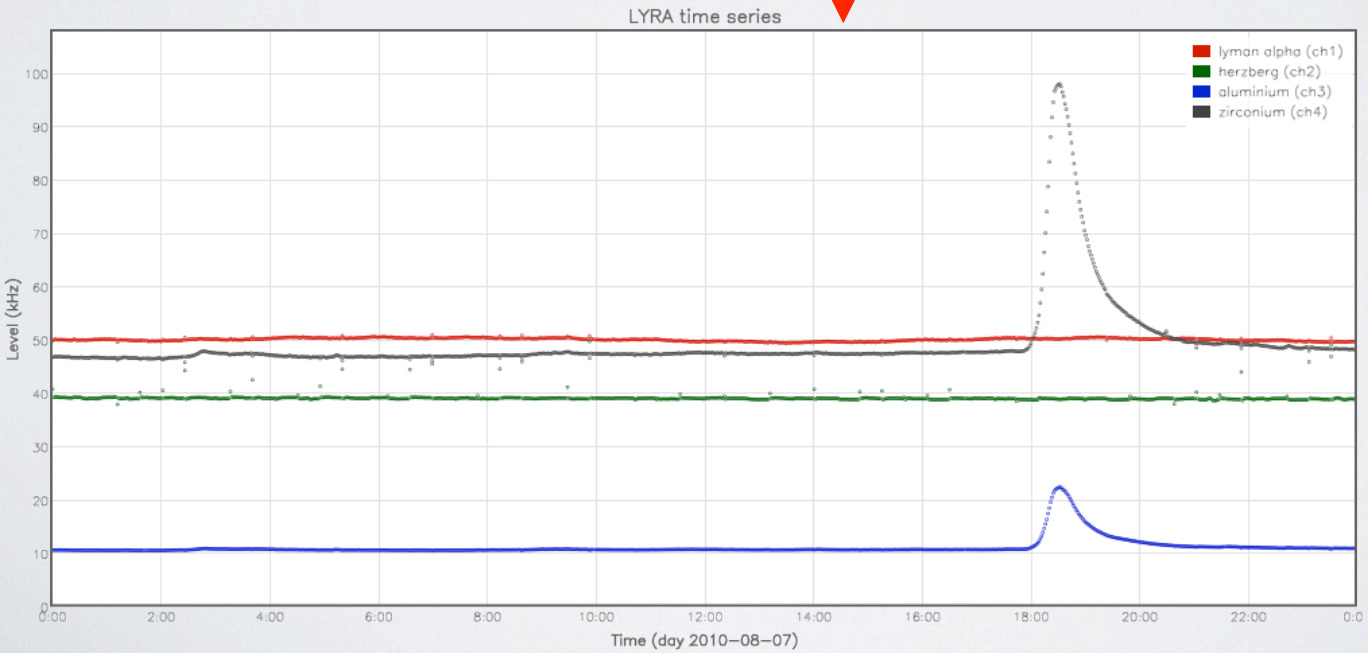



Collimator assembly
Precision apertures
Detector head
View-limiting aperture
Filters
Calibration LEDs

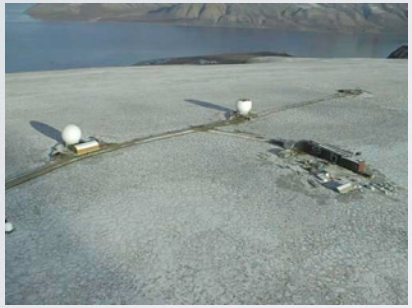
LYRA



- ‘blind’ voor zichtbaar licht
- bestand tegen straling



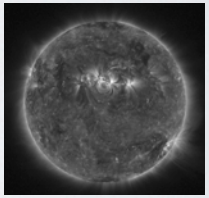
COMMUNICATIE

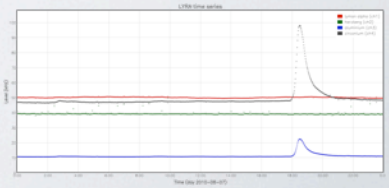


Svalbard

Redu

Ukkel





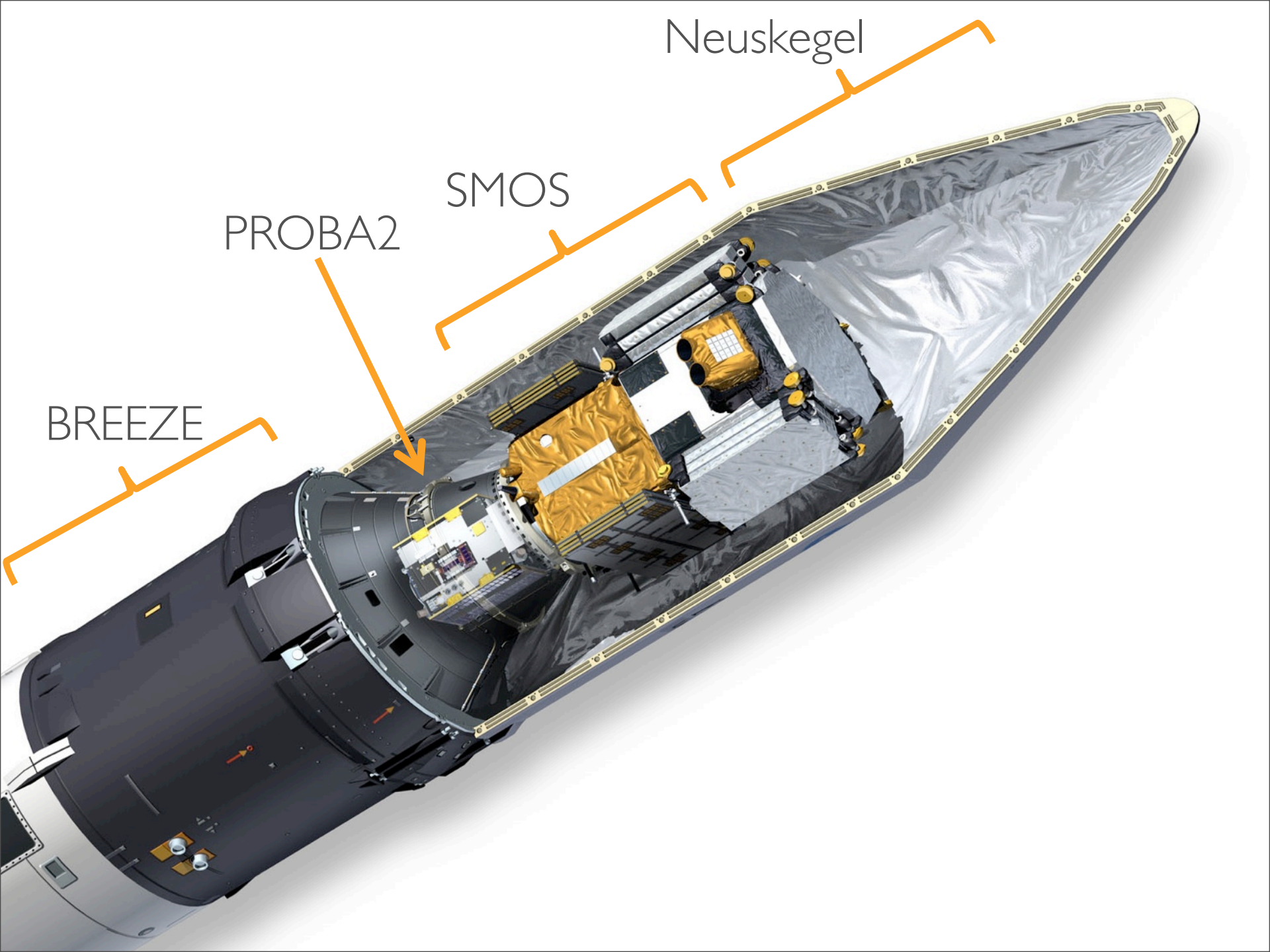
www

30 aug 2009

LANCEERCAMPAGNE

ICBM SS-19
~ Eurockot

TOKNOR
EUROCKOT
launch service provider


Neuskegel
SMOS
PROBA2
BREEZE

21 okt 2009

SMOS

PROBA2

BREEZE

27 okt 2009

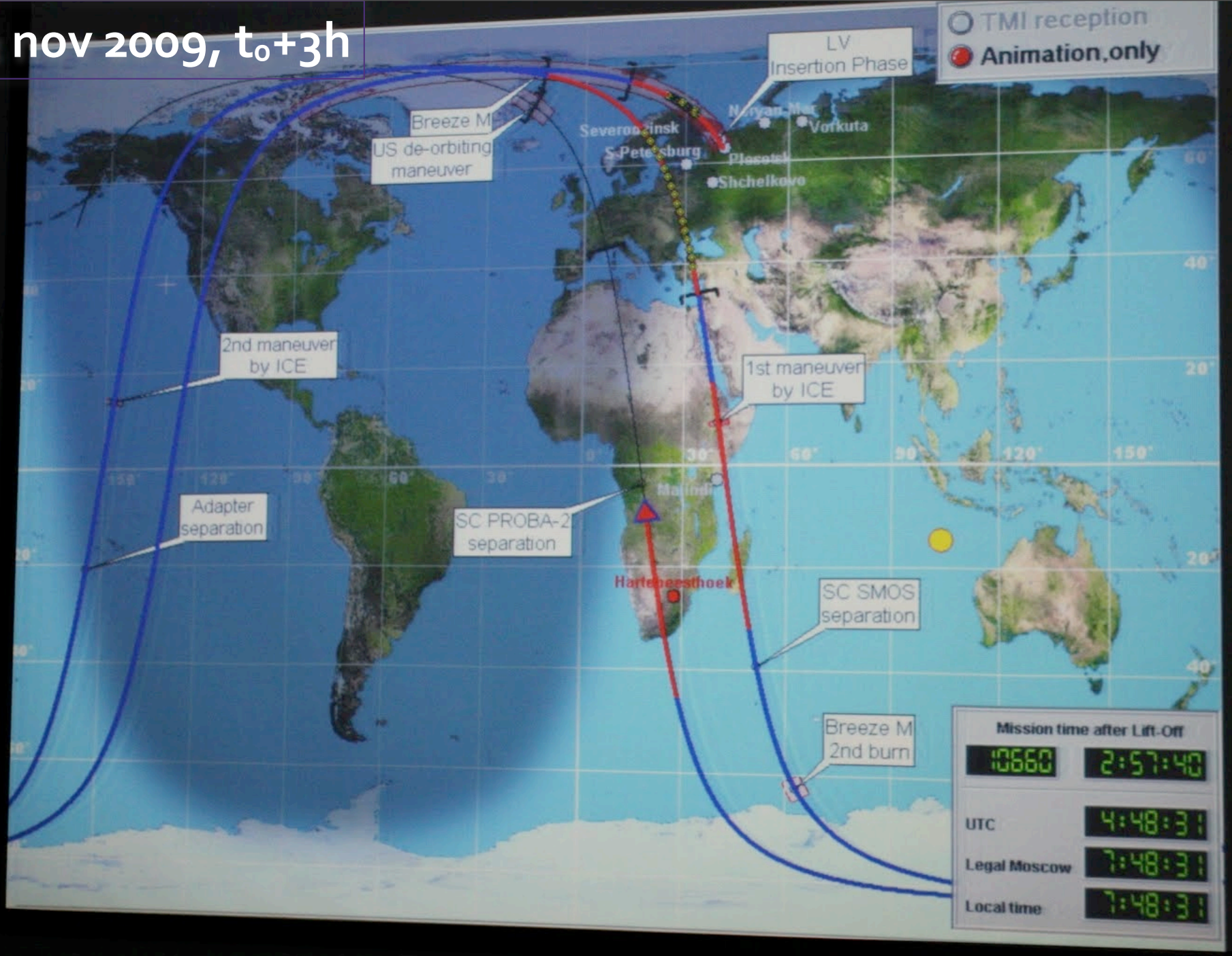
EUROCKOT
Launch Service Provider
EADS
KHRUNICHEV
esa
SMOS

27 okt 2009

t_0-10min

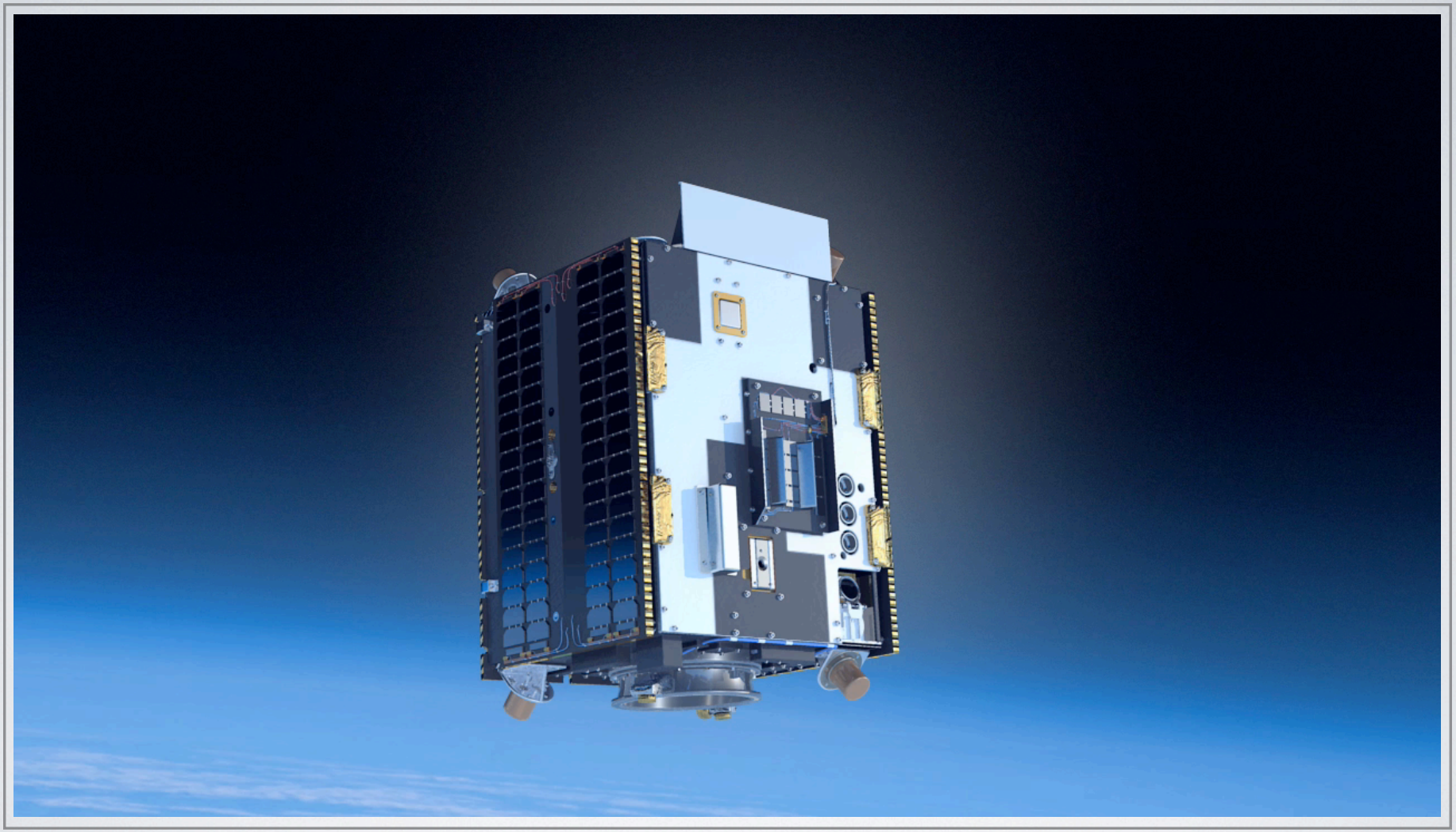
2 nov 2009

2 nov 2009, t_0+3h



2 nov 2009, t0+3h

2 nov 2009, to+3h

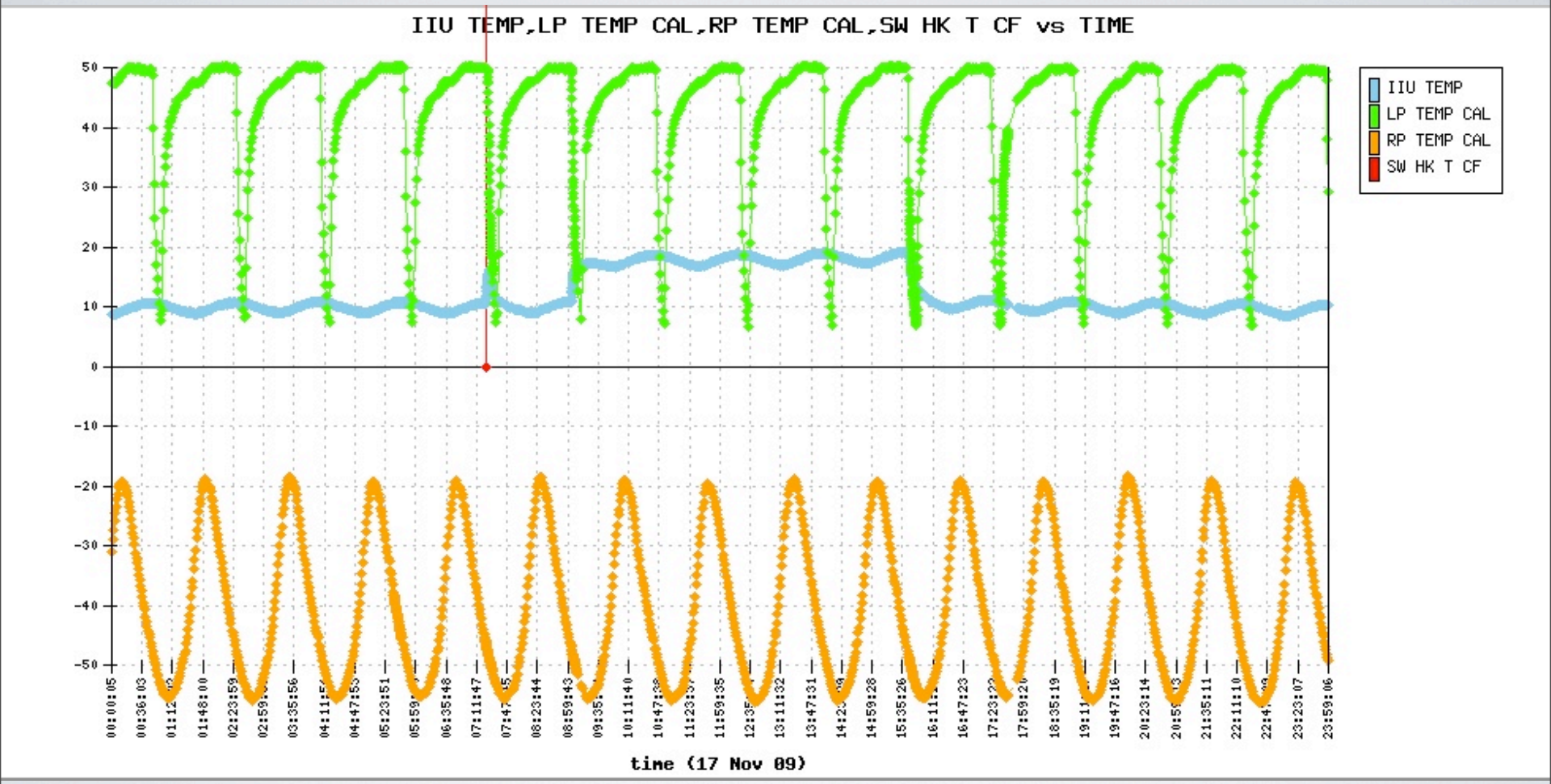


9 nov 2009, to+1w

Testen van subsystemen voor:

- Stroom
- Communicatie
- Orientatie

17 nov 2009, to+15d



20 nov 2009, to+18d

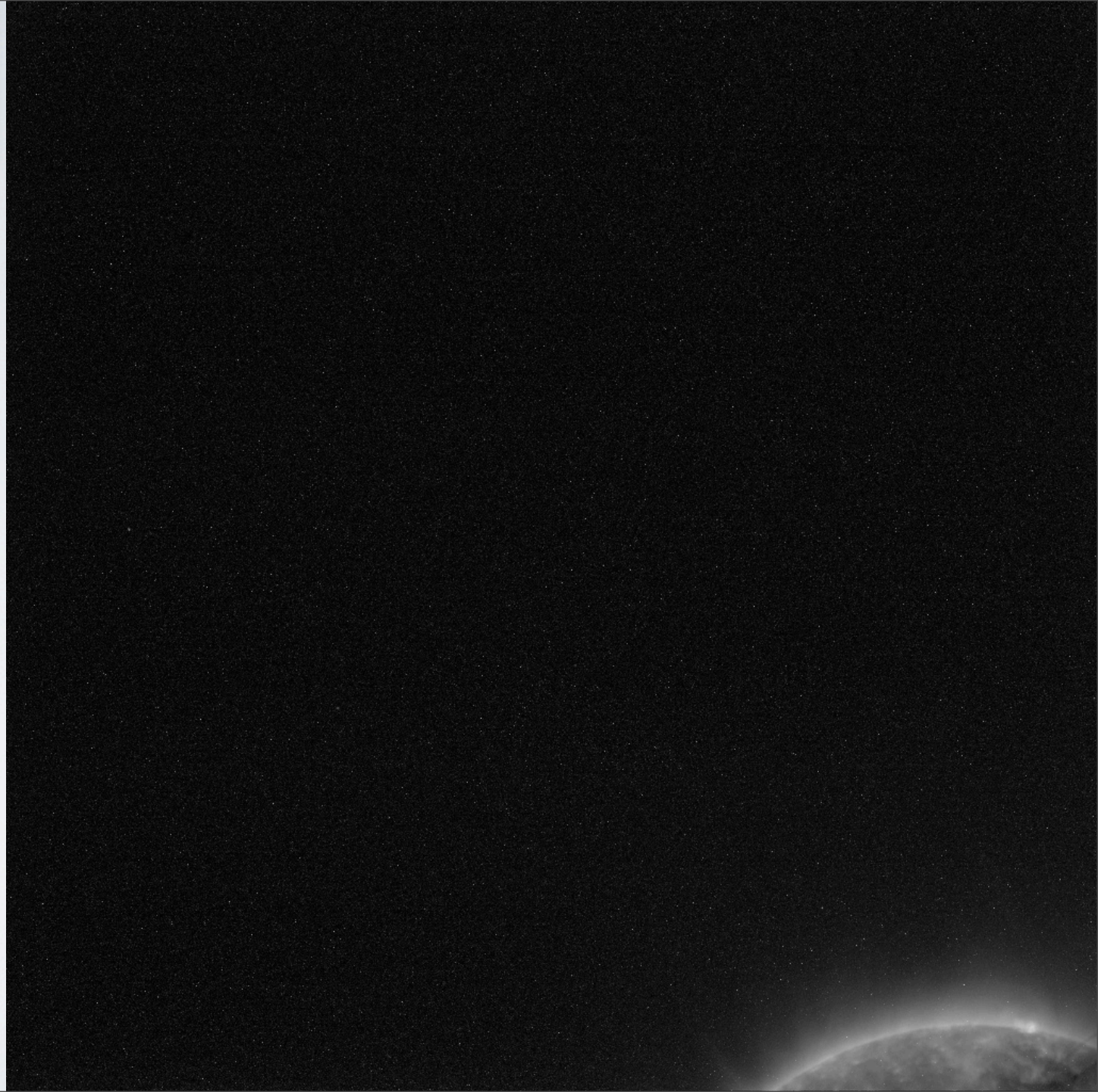
Eerste SWAP beeld
(met gesloten deur)

begin dec 2009, to+1m

SWAP ijking
(met gesloten deur):
602 darks,
278 LEDs.

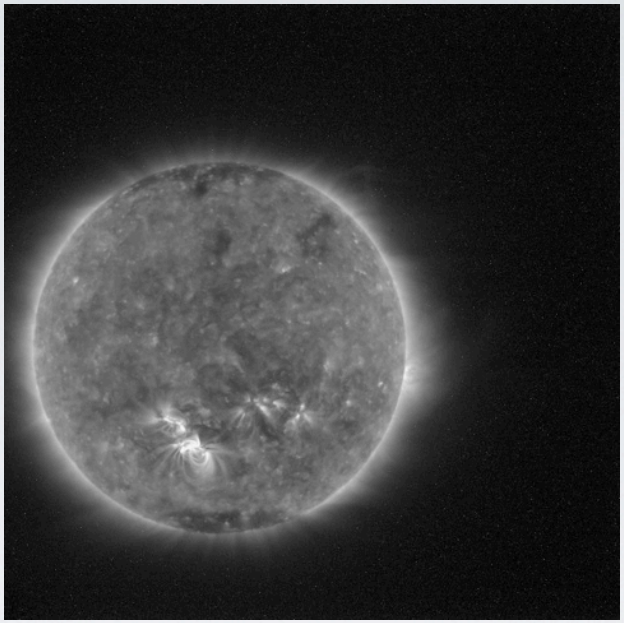
14 dec 2009, t0+42d

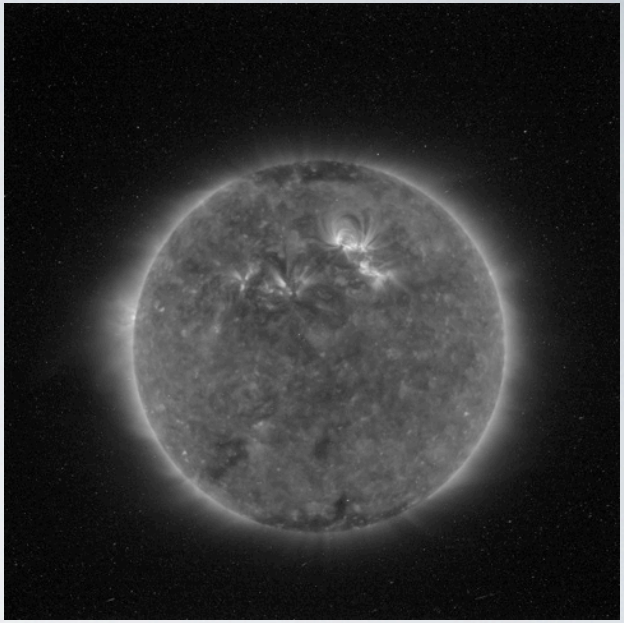
Eerste SWAP beeld
Met deur open

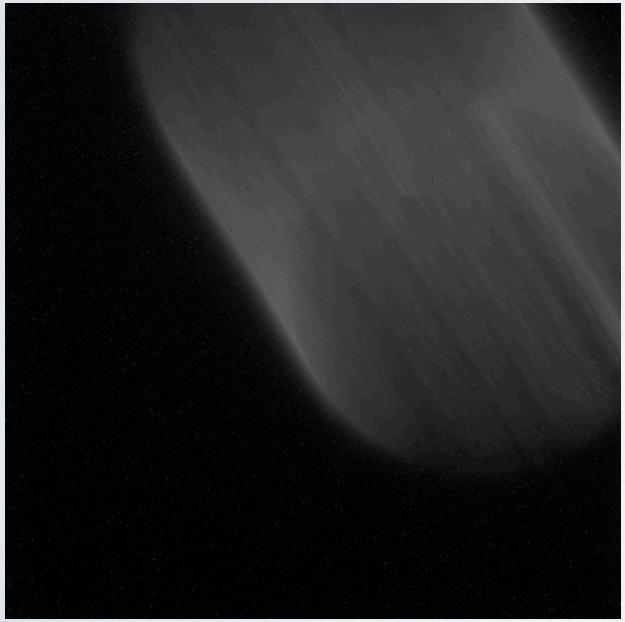


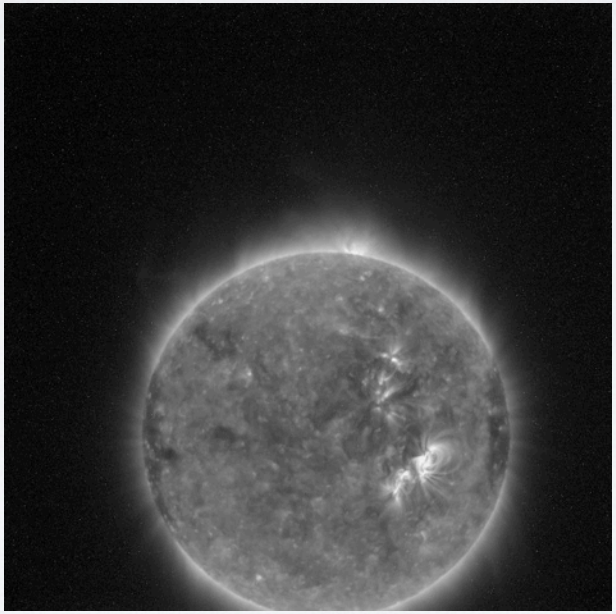
eind dec 2009

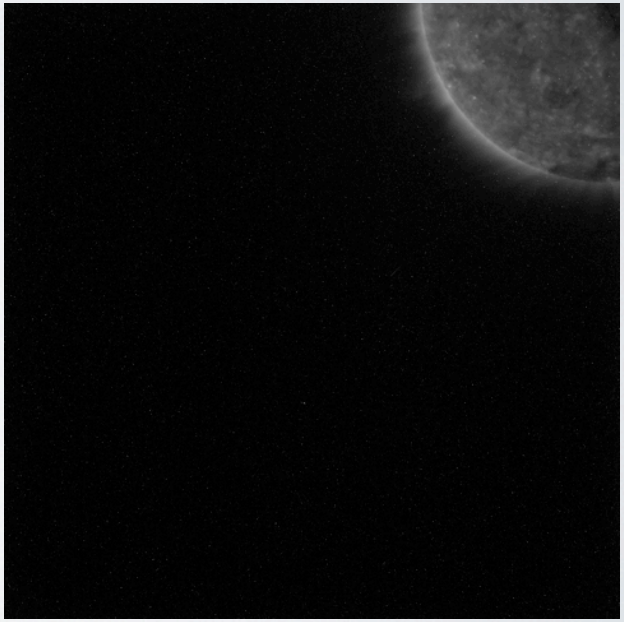
Oplossen van
“attitude problemen”







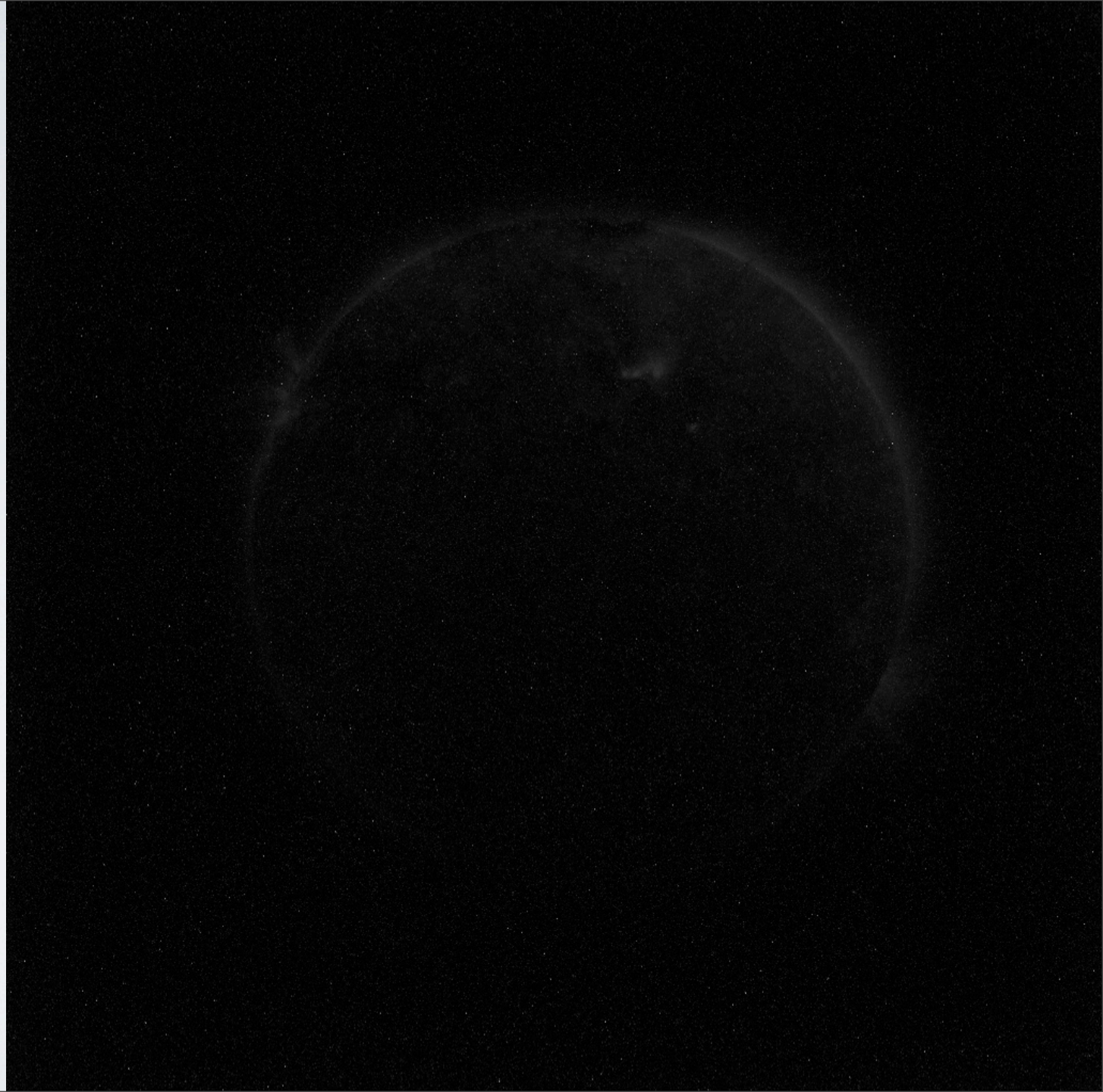




half jan 2009

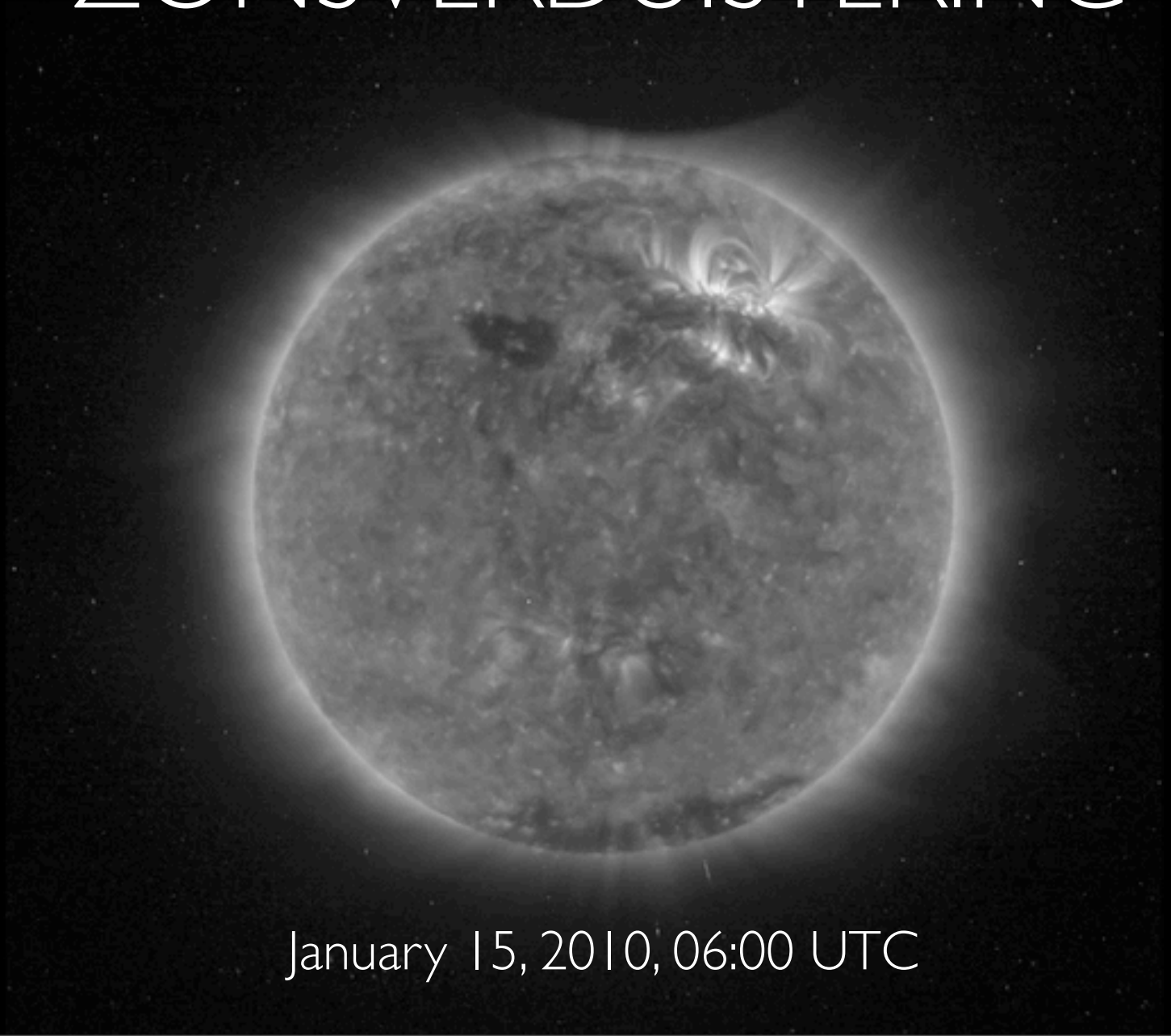
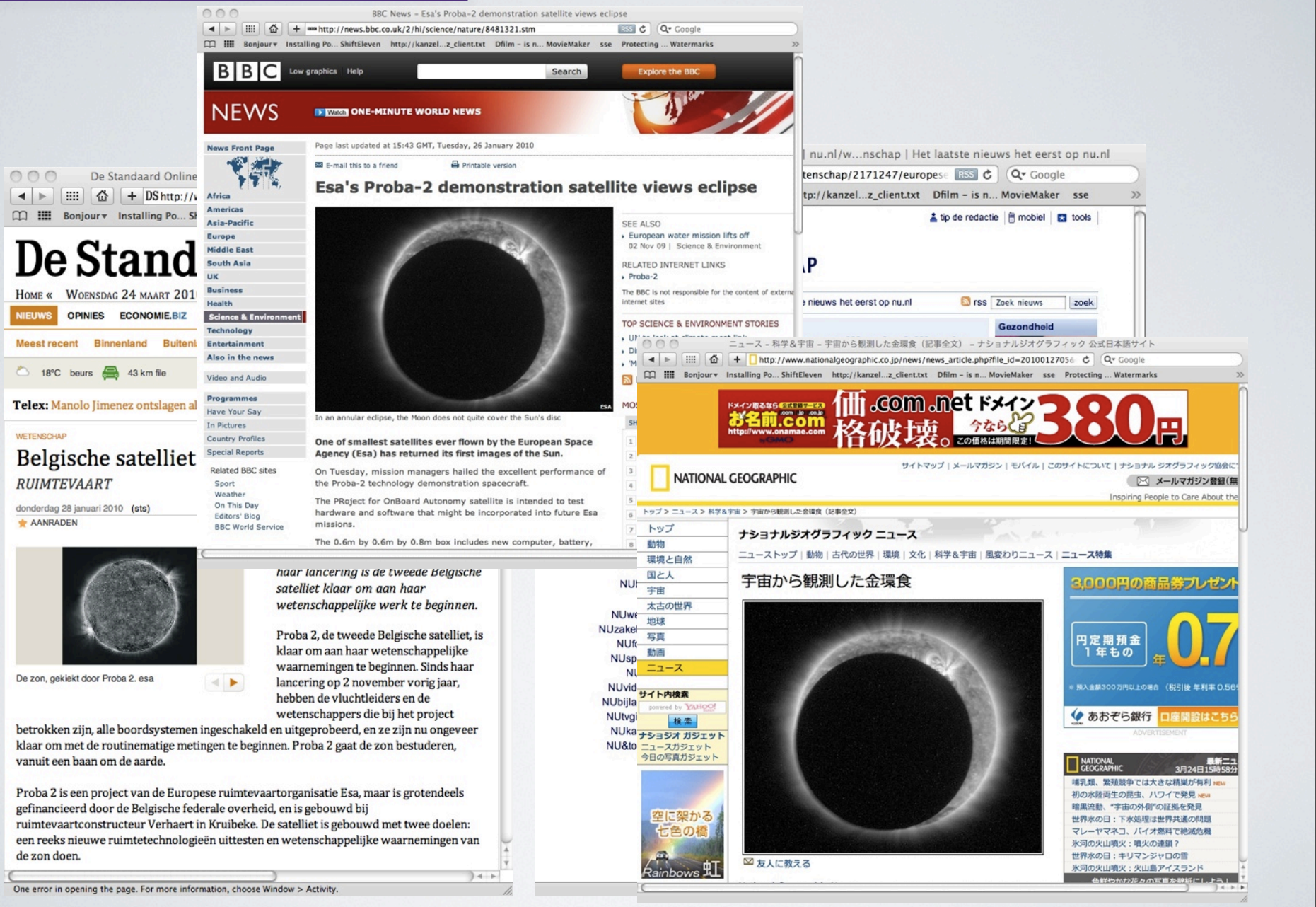
Einde eclipse seizoen

“Zonsonder gang”



15 jan

ZONSVERDUISTERING



26 Jan, in het nieuws