

Summary of Mercury Swing-By 1 and plans for Mercury Swing-By 2

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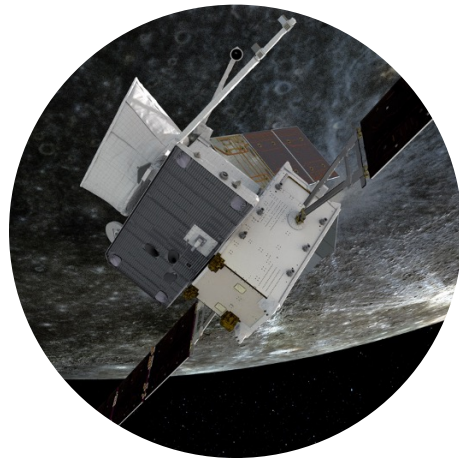
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PHEBUS team meeting - June 13, 2022 - Montigny le Bx



Preparation of the Swing-By



Detectors

Scanner
angle

+

- High voltage
- Exposure time
- Slit mode
- Duration of observation

Preparation of the Swing-By

Detectors

- Different species depending on the detector

EUV

- He (58.4 nm)
- H (121.6 nm)

FUV

- Fe (248.3 nm)
- Mg (285.2 nm)
- Al (309.3 nm)

NUV K

- Mn (403 nm)
- K (404.4 nm|404.7 nm)

NUV Ca

- Ca (422 nm)

Preparation of the Swing-By

Detectors

- Different species depending on the detector
- EUV and FUV detectors can't operate at the same time

EUV

- He (58.4 nm)
- H (121.6 nm)

FUV

- Fe (248.3 nm)
- Mg (285.2 nm)
- Al (309.3 nm)

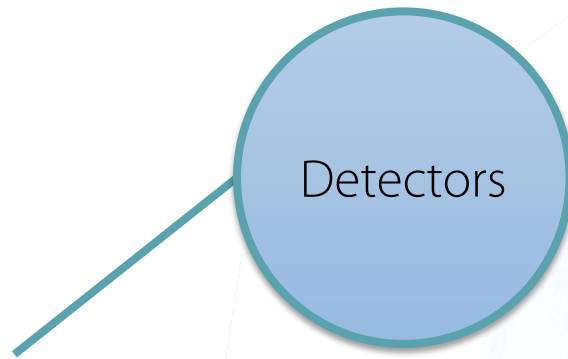
NUV K

- Mn (403 nm)
- K (404.4 nm|404.7 nm)

NUV Ca

- Ca (422 nm)

Preparation of the Swing-By



EUV

- He (58.4 nm)
- H (121.6 nm)

FUV

- Fe (248.3 nm)
- Mg (285.2 nm)
- Al (309.3 nm)

NUV K

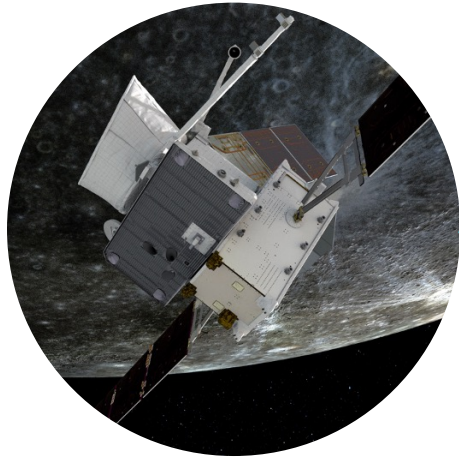
- Mn (403 nm)
- K (404.4 nm|404.7 nm)

NUV Ca

- Ca (422 nm)

- Different species depending on the detector
- EUV and FUV detectors can't operate at the same time
- Switch time

Preparation of the Swing-By

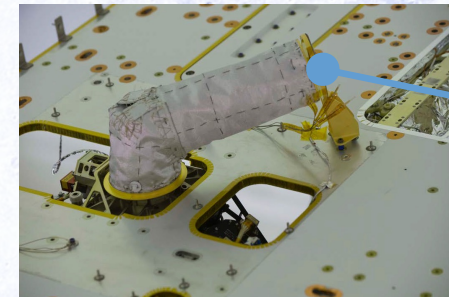


Scanner
angle

Preparation of the Swing-By

- Some positions are forbidden (blocked by the MTM or the parking bracket)

Scanner
angle

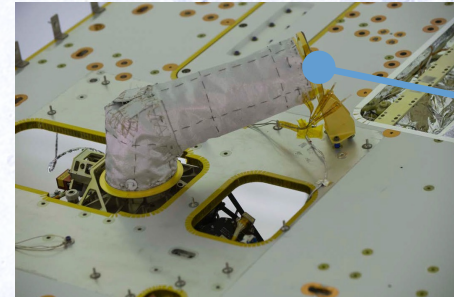


Parking
Bracket
(PB)

Preparation of the Swing-By

- Some positions are forbidden (blocked by the MTM or the parking bracket)
- PHEBUS' line of sight can't intercept the illuminated surface of Mercury

Scanner
angle

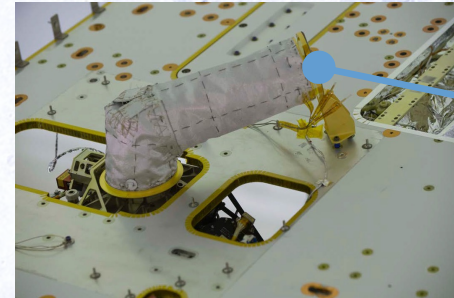


Parking
Bracket
(PB)

Preparation of the Swing-By

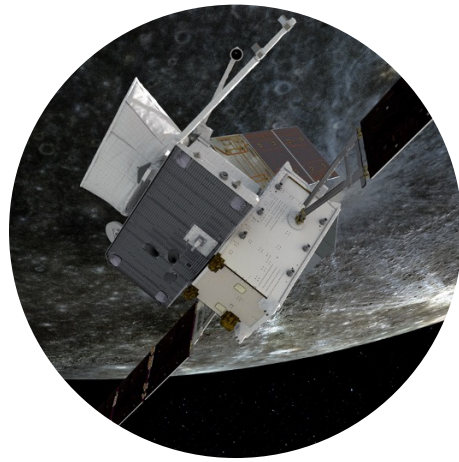
- Some positions are forbidden (blocked by the MTM or the parking bracket)
- PHEBUS' line of sight can't intercept the illuminated surface of Mercury
- Maximize the expected intensities

Scanner
angle



Parking
Bracket
(PB)

MSB1: PHEBUS parameters



Detectors
EUV + NUVs

Scanner angle
130°

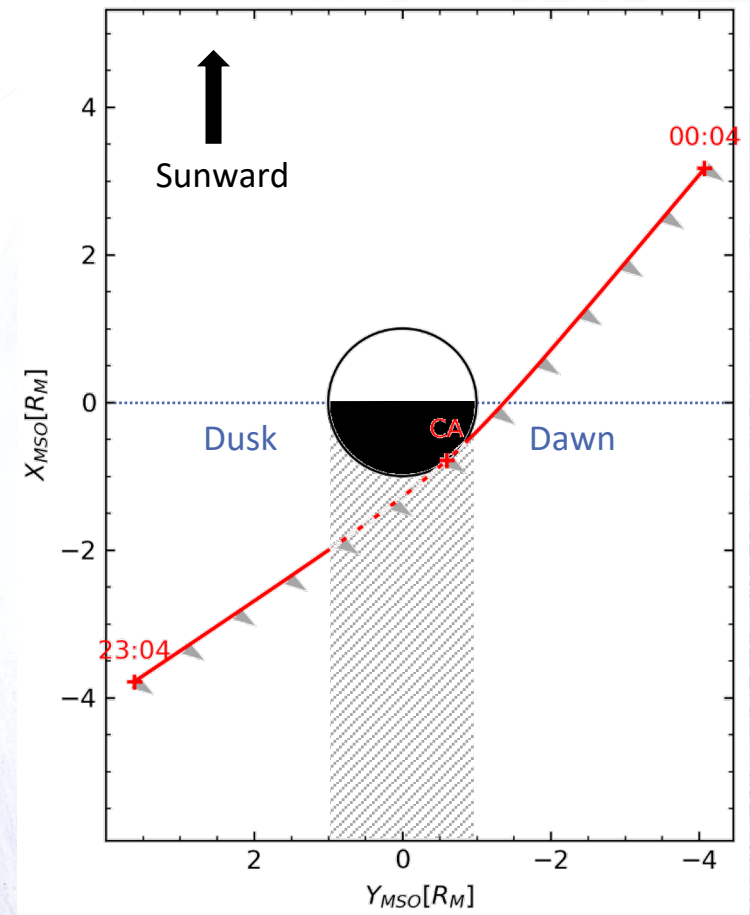
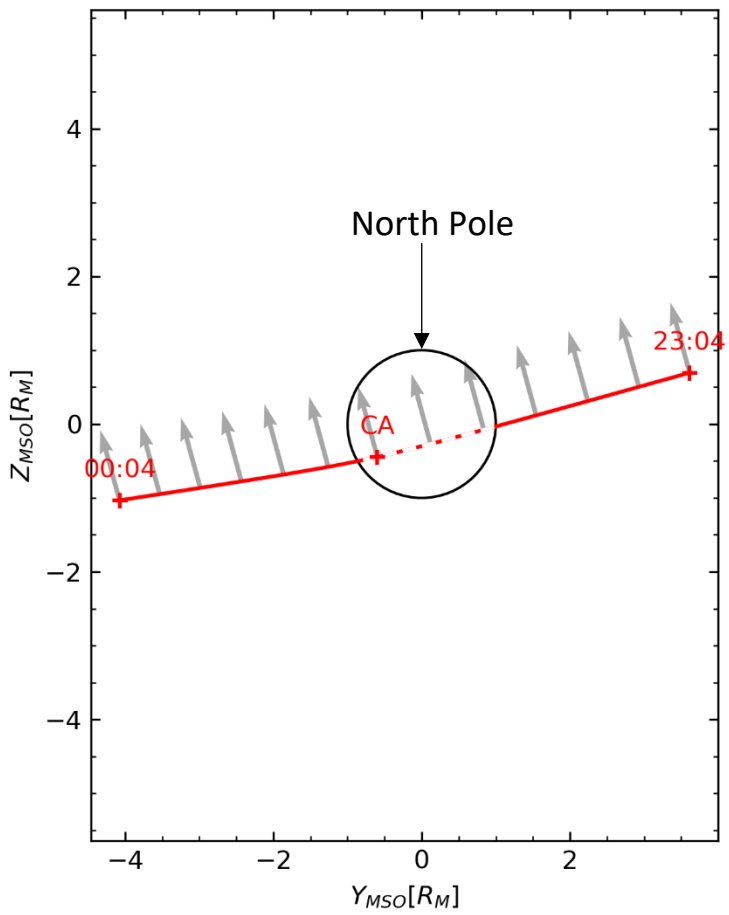
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- High voltage:
EUV=3400V,
NUVs=1000V
- Exposure time: 8s
- Slit mode: REMOVED
- Observation duration:
CA±30min

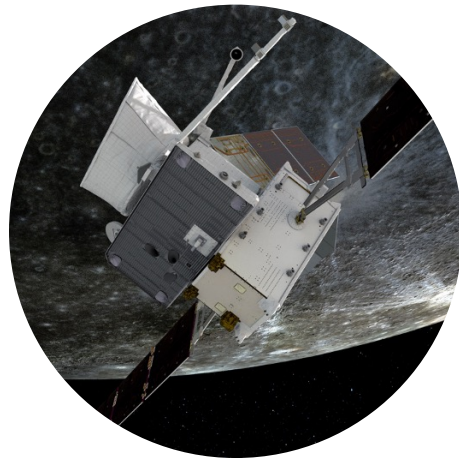
MSB1: Geometry of observation

CA = 2021-10-01T23:34:42 @ 200km
 TAA = 263°
 r = 0.381 AU

→ LOS
 — Spacecraft trajectory



MSB2: PHEBUS parameters



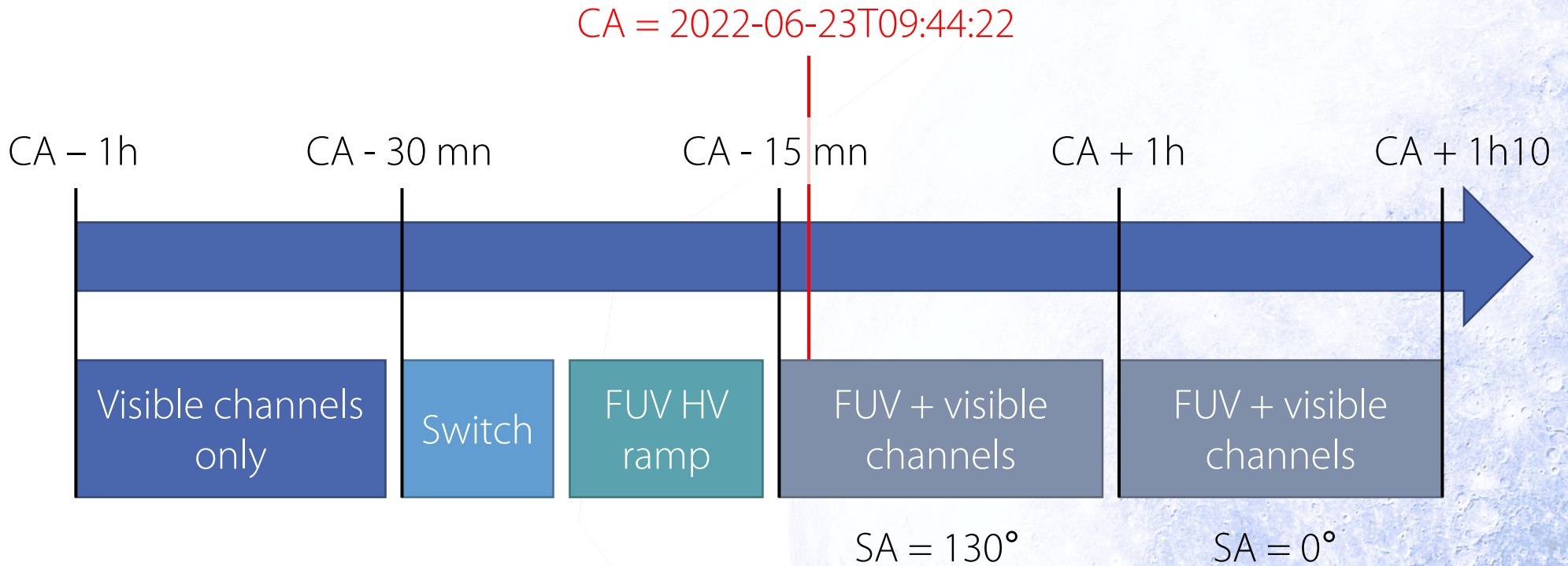
Detectors
FUV + NUVs

Scanner
angle
130°

+

- High voltage:
FUV = 4600V,
NUVs = 1000V
- Exposure time: 8s
- Slit mode: REMOVED
- Observation duration:
CA±1h

Plan for second Mercury Swing-By



Plan for second Mercury Swing-By

scanner angle = 130

