Plan-A Summary 2

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Candidate Payload?
(though we will not decide it here)

- Visible light imager for Doppler and magnetic field measurements (mandatory!)
- Coronal imager
- EUV/UV spectrometer

  higher throughput than EIS or with similar spatial resolution possible
- TSI instrument

- Heliospheric Imager? (Light solution is possible.)
- In-situ instrument (magnetometer, particle-measurement instrument….)

  Weight for shielding issue.
  Particle radiation environment needs to be well considered.

Target Orbit Inclination to the solar equatorial plane

Science Target	Target Inc. (deg)	Note
Magnetic field measurements at high latitudes (Lat. > 50^o)	>30	for ~ a month
Rotation profile at high latitudes (Lat. > 50^o) down to base of CZ	>30	for 40 days in a single orbit
Meridional flow at high latitudes (Lat. > 50^o) down to base of CZ	>30	for 40 days A day for the surface only
Super granulation & larger-scale granulation pattern at high latitudes	>30	for a month, satisfied?
Search of Deep Core		Total obs. duration ~ year each can be segmented

Orbit assumed:1 year period with 1AU Sun-spacecraft distance
Each pole is to be observed multiple times.

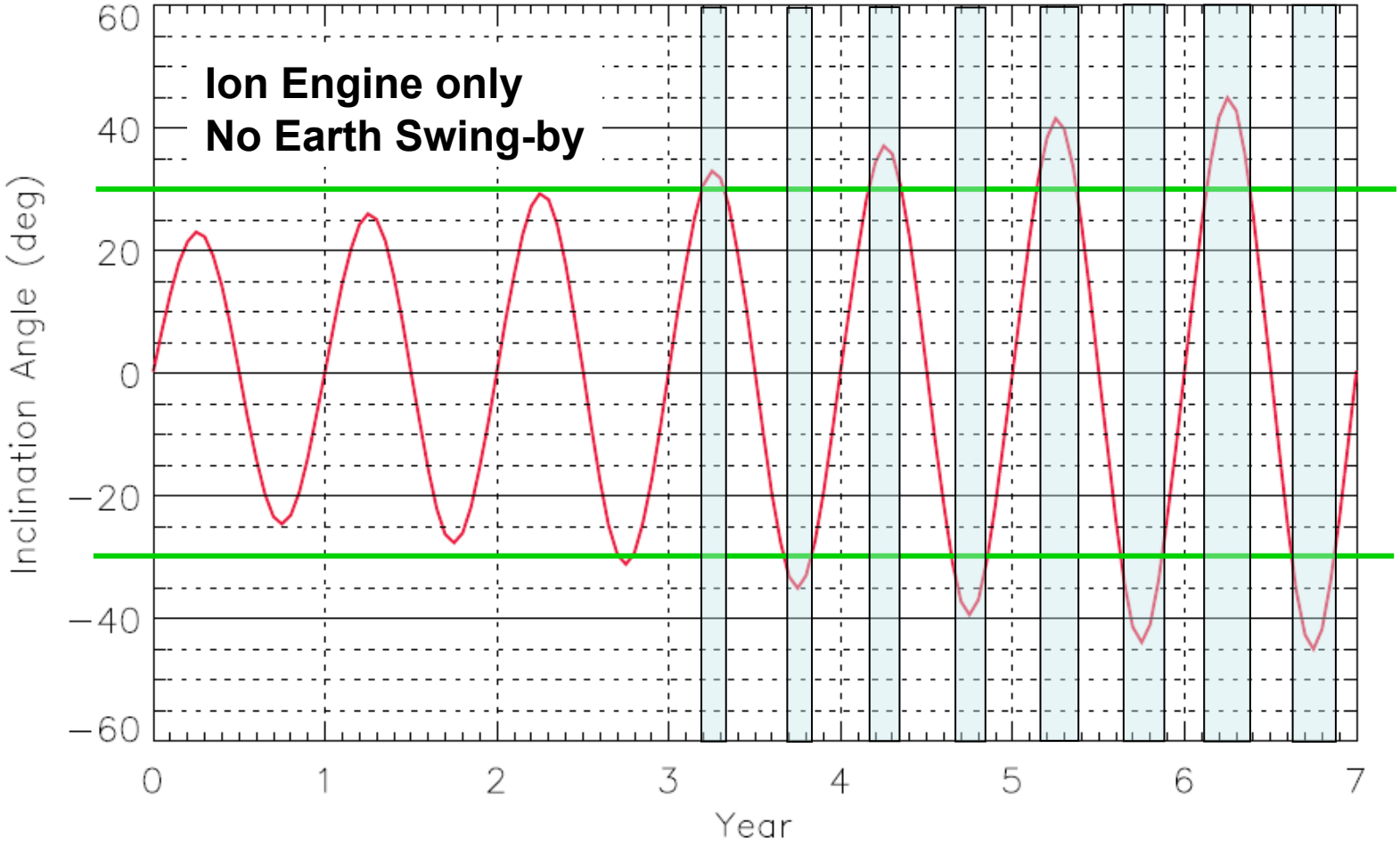
Target Orbit Inclination to the solar equatorial plane

Science Target	Target Inc. (deg)	Note
High-speed solar wind	>40?	
Total solar irradiance variation with inclination	>40	For a week, long enough?
In-situ measurements	?	
Imaging of Helioshphere	>40	As high as possible for the max inclination even for a short duration?

Orbit assumed:1 year period with 1AU Sun-spacecraft distance
Each pole is to be observed multiple times.

Inclination angle from Solar equatorial plane

Ion engine duty (%)	61	61	67	70	71	60	0
Spacecraft Weight (kg)	1200	1123	1046	963	876	789	713

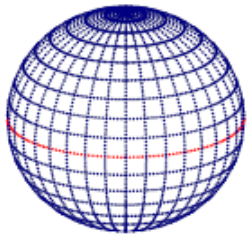


How is appearance of solar poles as a function of inclination?

i: inclination angle between solar equatorial plane

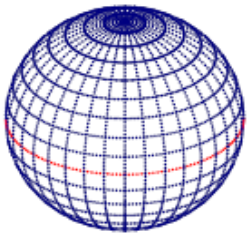
Rocket: H2A-202

Cruise by
Ion engine
in a shorter duration
compared with SO

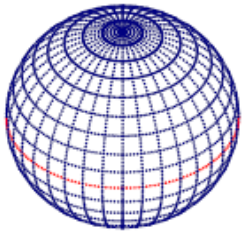


***i* = 20 deg**

Possible by
Earth swing-by
only

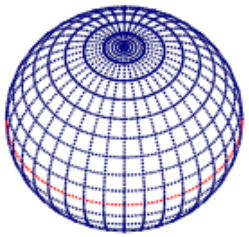


***i* = 30 deg**



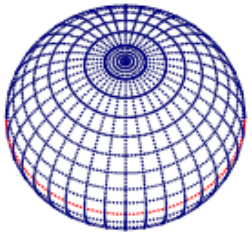
***i* = 40 deg**

Ballistic orbit
by **Jupiter** and Earth
Swing-by
with heavier (~×3) payload
H2A-204



***i* = 50 deg**

Cruise by
Ion engine
in a long duration
~10 yrs,
but with higher duty cycle
for observations



***i* = 60 deg**

Jupiter swing-by
of long-duration
cruise (>10 yrs)
H2A-204