

# Helioseismology by Hinode(Solar-B)

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# Hinode/Solar-B (1/2)

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- It is an ISAS mission but in fact there are more people at NAOJ working on it (Solar-B project office is headed by S. Tsuneta)
- Japan-US-UK collaboration
- **Successfully launched** on 23 September 2006 and named ***Hinode***
  - Pronounced (approximately) He-nod-A
  - Means 'Sunrise'

# Hinode/Solar-B (2/2)

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- Equipped with Solar Optical Telescope (SOT), X-ray Telescope (XRT) and EUV Imaging Spectrometer (EIS)
- On a Sun-synchronous orbit (alt.~600km) , providing 24-hr coverage for 8 months each year
  - The main scientific goal: to understand generation, transport and dissipation of solar magnetic field
  - 50-cm SOT produces **high-resolution Dopplergrams** that can be used for **local helioseismology**

## Solar Optical Telescope (1/2)

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- Narrowband Filter Imager (NFI) produces filtergrams, which are then converted to dopplergrams
- Spatial resolution: 0.2"-0.3" = 150km (@disc centre)
  - pixel size 0.08"
- Field of view: 328"×164" (unvignetted 264"×164") [164" ~ 10 (heliographic) degree]
- Equipped with correlation tracker
- Cadence can be down to ~15sec

## Solar Optical Telescope (2/2)

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- Dopplergram target lines
  - Photospheric: Fe I 5576 (non-magnetic)
  - Chromospheric: Mg I 5173  
(lower chromosphere, also for magnetogram)
- Can use photospheric magnetic lines for comparison with MDI/HMI
- Can observe high latitudes
- 'Simultaneous' magnetograms can be acquired too

# Concluding messages

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- Thanks for your kind invitation, sorry I could not come
- SOT on-board **Hinode** provides opportunity for a high-resolution (although narrow FOV) local helioseismology
- Hope you all will be joining us in analysing Hinode data