

Website: <http://www.ss.ncu.edu.tw/~yhyang/112-1/st.html>

→ Lectures + presentations

→ 2hr lectures & discussions + 1hr hands-on & report

→ 16 weeks

Evaluation:

→ Homework: 60%

→ Progression report: 20%

→ Final Exam (open book, open note): 20%, 12/27

Textbooks:

- Introduction to Space Physics, M. G. Kivelson and C. T. Russell, Cambridge University Press, 1995.
- Interplanetary magnetohydrodynamics, L.F. Burlaga, Oxford University Press, 1995.
- Physics of the Space Environment, Tamas I. Gombosi, Cambridge University Press, 1998.
- Physics of Space Plasmas: An Introduction, G. K. Parks, Westview Press, 2004.
- Physics of the Earth's Space Environment An Introduction, Gerd W. Prölss, Springer, 2004.
- Handbook of the Solar-Terrestrial Environment, Yohsuke Kamide G. K. Parks, Abraham C.-L. Chian, Springer, 2007.
- Magnetohydrodynamics of the Sun, Eric R. Priest, Cambridge University Press, 2014.

Solar-Terrestrial Environment

Sun

Interplanetary Space

Earth's Magnetosphere

High speed solar wind
ICME/Magnetic cloud
Stream/Corotating
interaction region (SIR/CIR)
Interplanetary shock
Solar energetic particles

Coronal hole
Solar flare

Coronal mass ejection (CME)

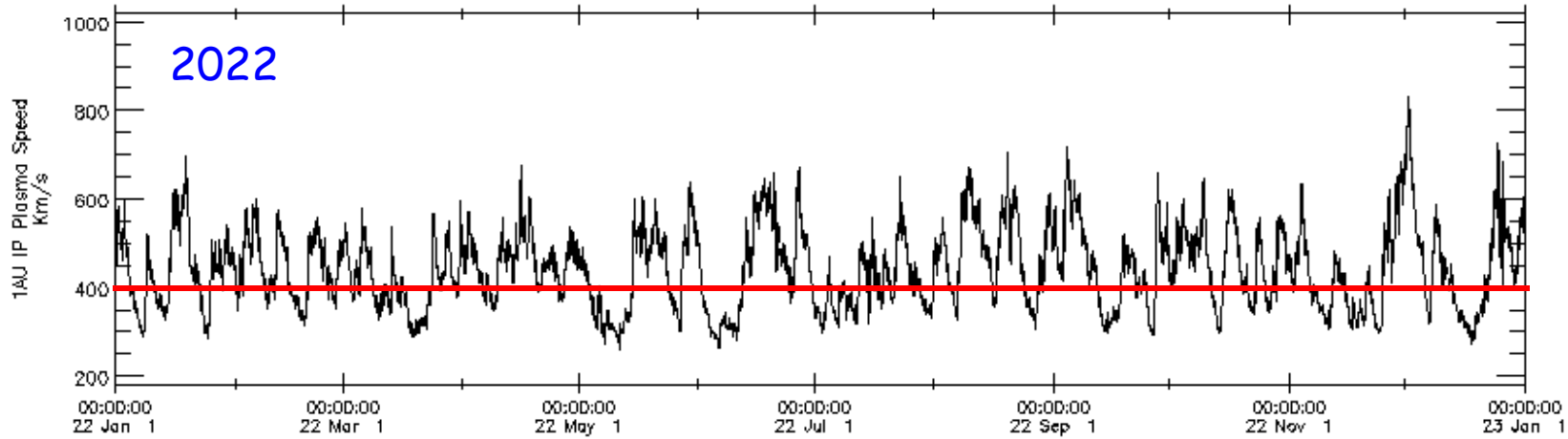
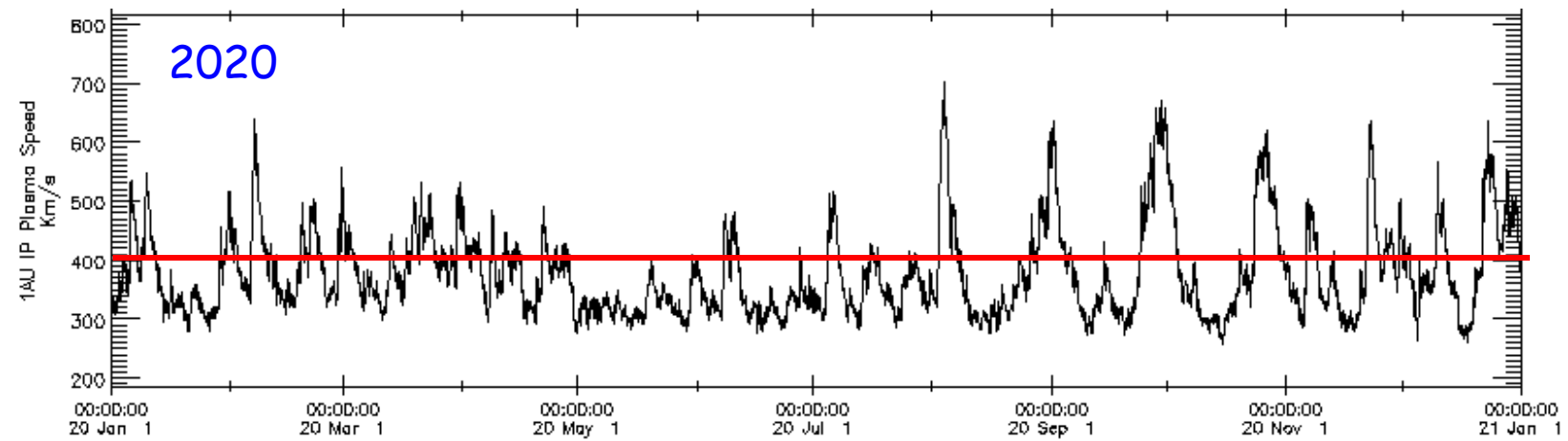
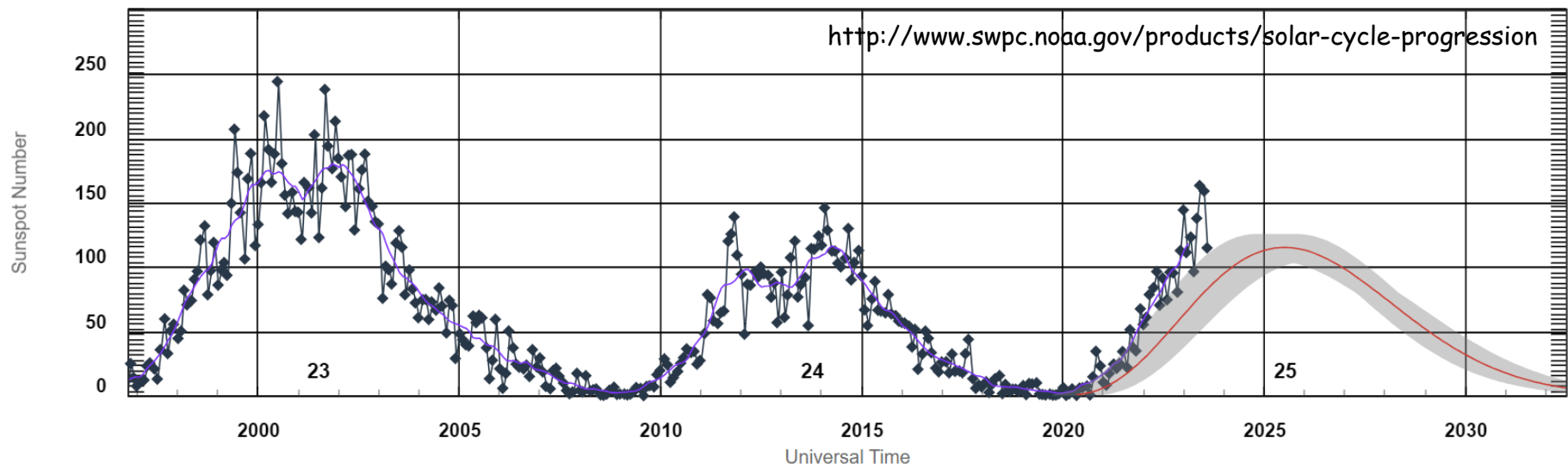
Geomagnetic indices
Tsyganenko model
Magnetopause model
Bow shock model

$$1 R_e \sim 6.37 \times 10^3 \text{ km} \sim 0.009 R_s$$

$$1 R_s \sim 6.96 \times 10^5 \text{ km} \sim 0.005 \text{ AU} \quad \sim 110$$

$$1 \text{ AU} \sim 1.50 \times 10^8 \text{ km} \quad \sim 100$$





Coordinated Data Analysis Web (CDAWeb):

http://cdaweb.gsfc.nasa.gov/istp_public/

OMNI Data Documentation:

<http://omniweb.gsfc.nasa.gov/html/HROdocum.html>

(http://omniweb.gsfc.nasa.gov/ftpbrowser/bow_derivation.html)

SPDF-Satellite Situation Center Web (SSCWeb):

http://sscweb.gsfc.nasa.gov/cgi-bin/Locator_graphics.cgi

SOHO LASCO CME CATALOG:

http://cdaw.gsfc.nasa.gov/CME_list/

World Data Center for Geomagnetism, Kyoto:

<http://wdc.kugi.kyoto-u.ac.jp/wdc/Sec3.html>

Helioviewer:

<https://www.helioviewer.org/>

iSolSearch:

<https://www.lmsal.com/isolsearch>

HEK Data Search:

<https://www.lmsal.com/heksearch/>