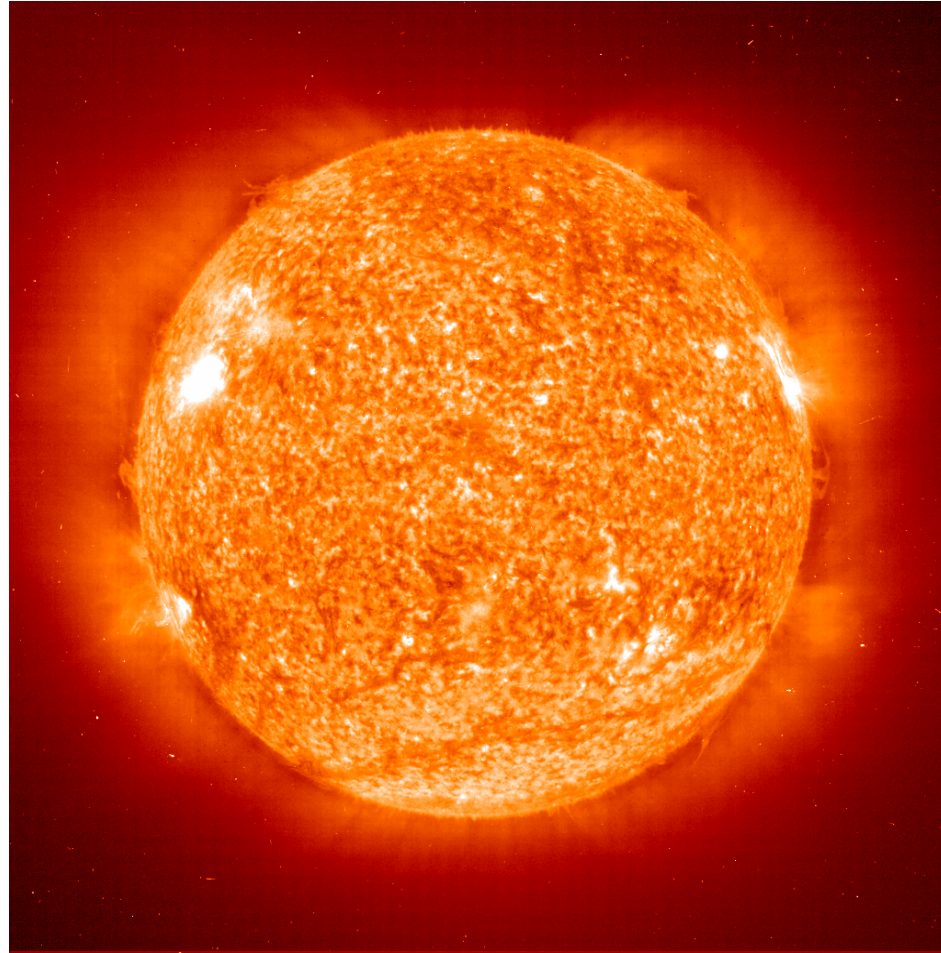


Taiwan Oscillation Network

台灣日震觀測網

太陽會震盪



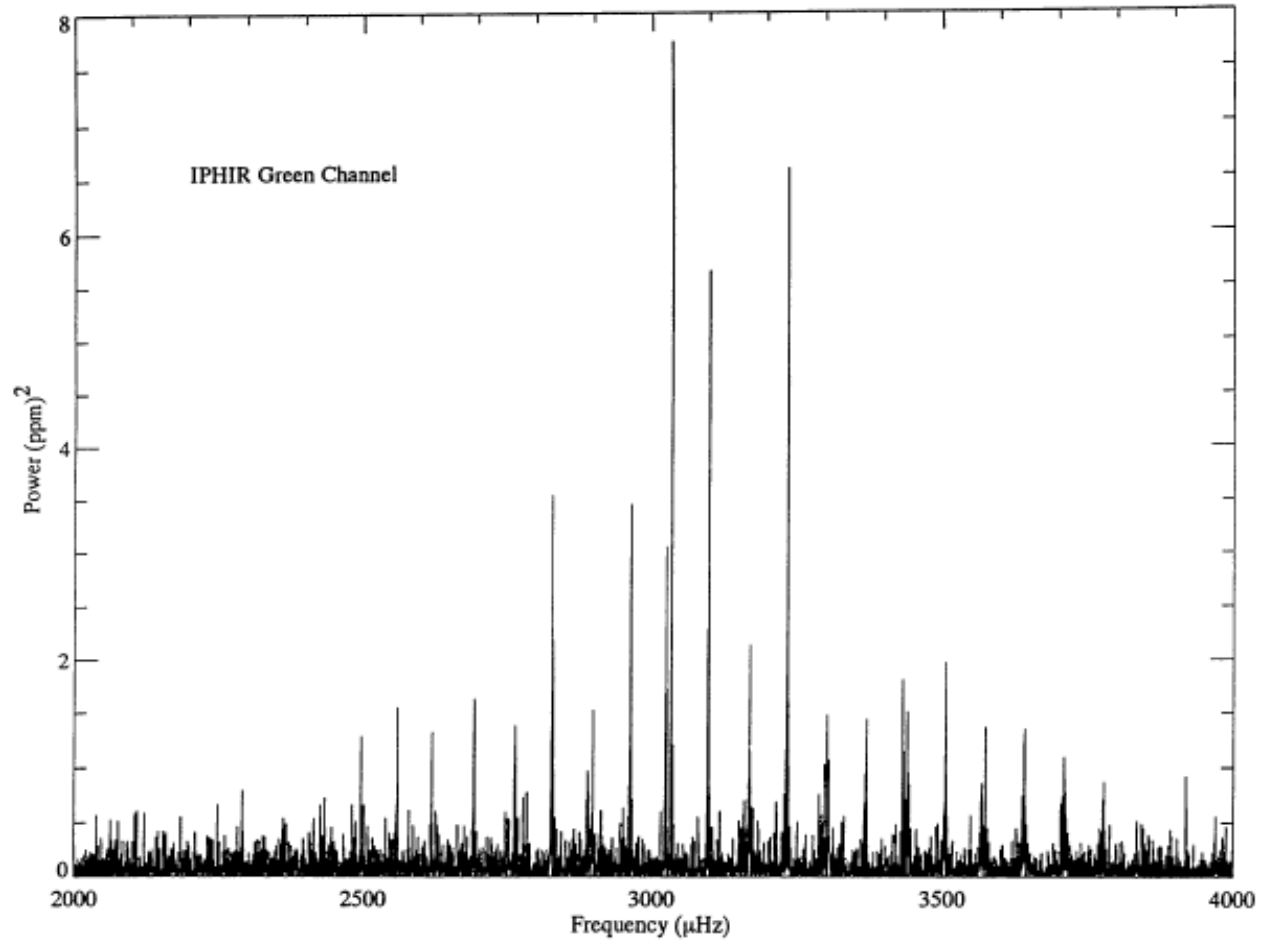
日震代表了什麼？

- 太陽的亮度震盪著，其物理量也跟著震盪
- 有震盪就有波的傳遞，波的傳遞過程跟環境的物理性質有關係
- 解析波的傳遞過程，就可以解析太陽的物理性質

Modes 震盪模式

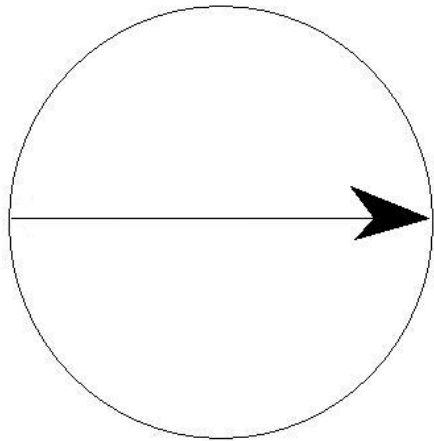
- **p-mode**
壓力為回復力
- **g-mode**
重力為回復力
- **f-mode**
混合...

典型的數據



舉個例子

$$\Delta \nu_0 = \left(2 \int_0^{R_*} \frac{dr}{c} \right)^{-1},$$



- dr 是一小段距離
- c 是極小區域的聲速
尺度約為 dr
- 所以 dr/c 表示一段距離中，聲波傳的時間
- 對半徑積分
- 總時間的倒數是頻率

我們需要觀測網

Tenerife



Beijing



Big Bear



Tashkent



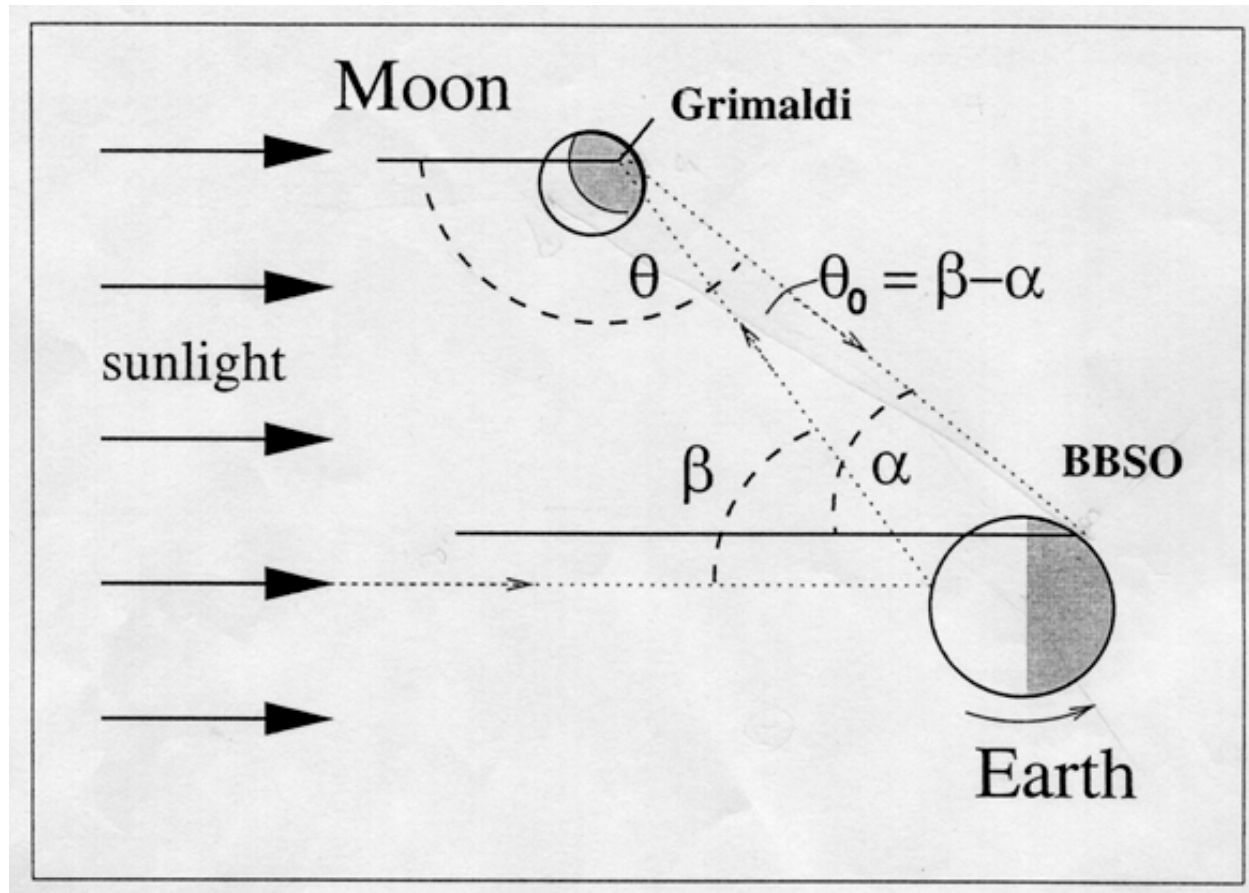
Taiwan Earthshine Network

台灣地暉觀測網

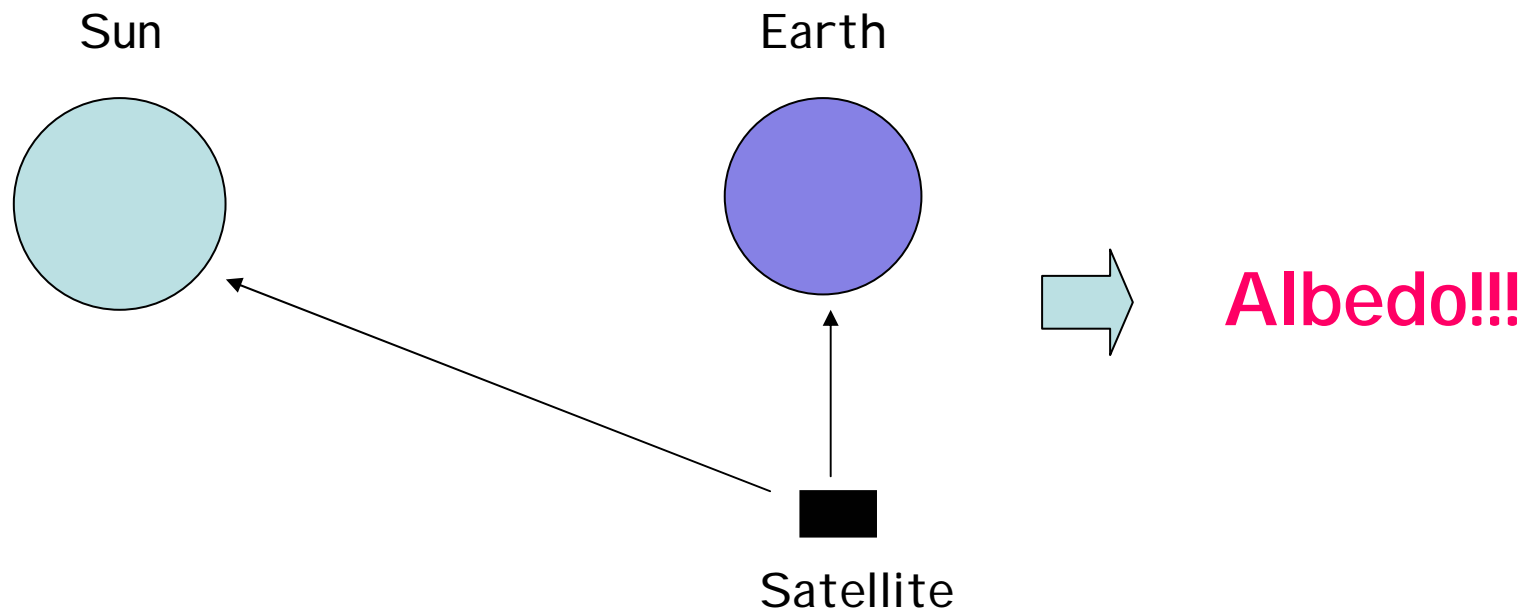
Taiwan Asteroseismology And Earthshine Network

台灣星震與地暉觀測網

地暉 Earthshine



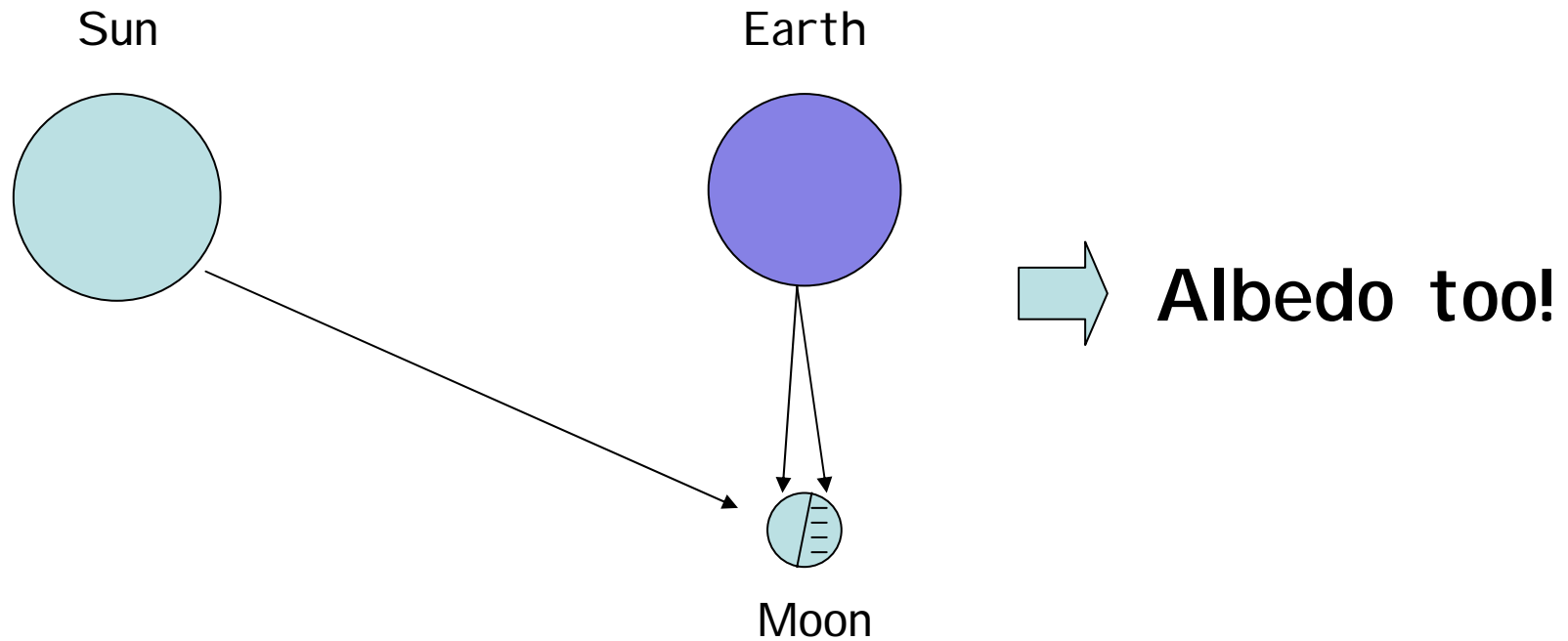
How to measure the **albedo** of the Earth? (*from **satellite***)



Earth seen from a satellite



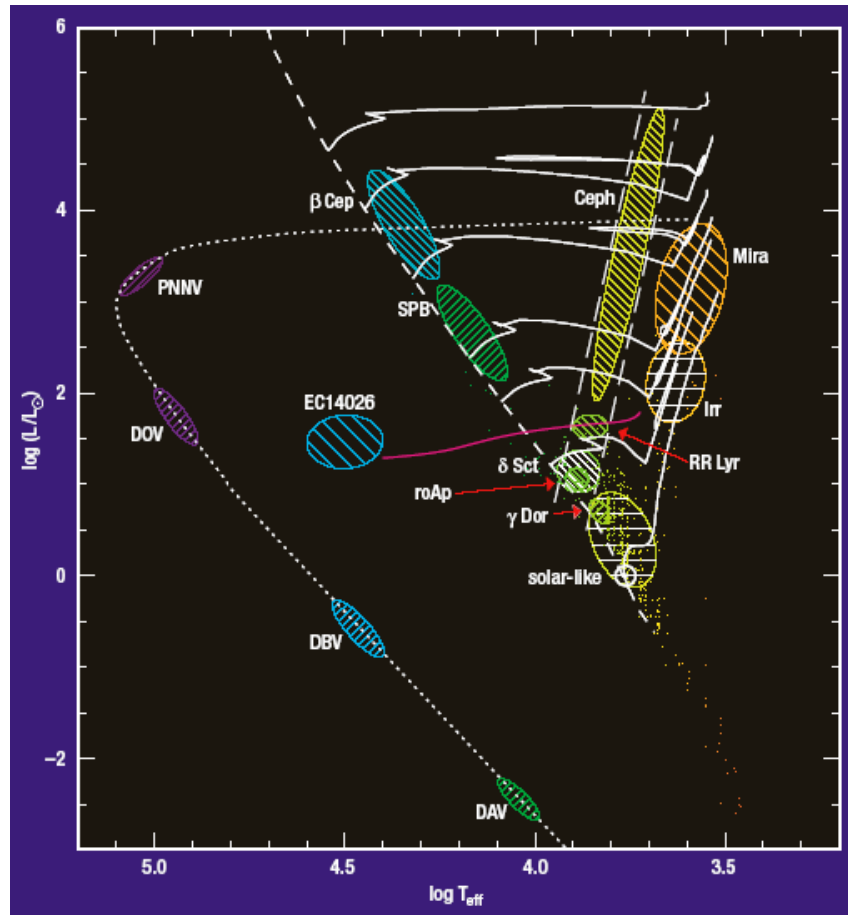
How to measure the albedo of the Earth? *(from Earthshine)*



Comparing the brightness of the
two -> ...-> Albedo

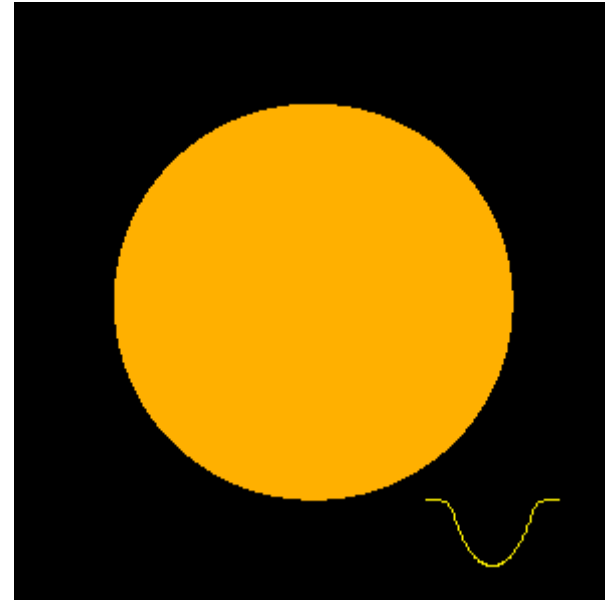
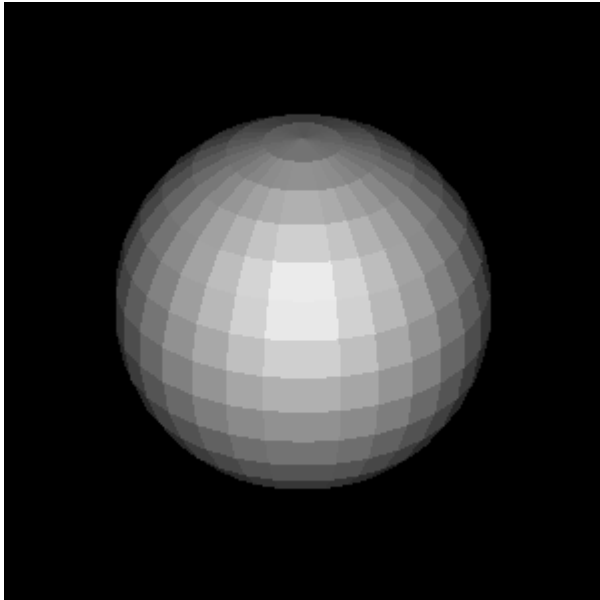


星震 Asteroseismology



- Cepheid
- β -Cepheid
- δ -Scuti
- γ -Dor
- Sun-like
- White Dwarf
- ...etc

震盪中...



我們需要觀測網...

- 正在建造中...

其實結束了...嘿嘿...