First ISSI meeting results

Studying development of turbulence with heliocentric distance near the ecliptic plane.
The role of current sheets, magnetic islands and magnetic reconnection in spatial evolution of turbulence.

1) **Case studies**. Ulysses. (*Malandraki, G. Li, Bruno, Chasapis, Khabarova*)
- Selection of plasma samples possessing the same features (the same parts of CIRs and ICMEs, the HCS crossings). Selected events: January and September 2005 (see Dropbox).
- Comparisons of high PVI events and current sheets detected by Gang's method. January and September 2005 (stream-stream interaction events), and February 2004 (the heliospheric plasma sheet crossings).
- Comparisons of distant events and corresponding 1 AU events

2) **Current Sheet simulations** – magnetic reconnection producing secondary current sheets and islands at different heliocentric distances (*Pezzi, Effenberger*). The main idea is that the HCS and other strong reconnecting current sheets are actually stochastic reconnecting multi-layer current sheets, so the entire plasma sheet area becomes wider with distance, current sheets get thinner and thinner, and the number of secondary zero points increases, which turns the solar wind into the state of intermittent turbulence rather quickly farther from the Earth.
(see also discussion by Oreste and Frederic here https://www.dropbox.com/s/uzp04p534ozn897/Notes%20on%20Current%20Sheet%20simulations%20ISSI_team.docx?dl=0)

3) **Magnetic reconnection evolution with distance**. Theoretical point of view. Estimations of the existence of the point where magnetic reconnection eventually stops, comparison with observations (*Kislov, Malova, Khabarova*).

4) **Heliospheric Current Sheet stability** (*Malova*) **and formation of ripples** (*Zank*)

5) **Energetic particle acceleration** in different plasma configurations (*Zank, Kislov*)