N2 DWG 2
Science Case 1

1 - Objective or science goal:

Solar wind interaction at Jupiter and Saturn including aurorae? (WHAT IS THE FINAL PRODUCT?)

2 - Needed data sets:

Oct2000-Feb2001: ***Millennium Campaign at Jupiter (Cassini, Galileo, Hubble Space telescope (UV), Chandra X-ray Observatory, XMM-NEWTON, InfraRed Telescope Facility), other ground-based observations (radio emissions,...), amateur observations?, Laboratory measurements ?***

Jan 2004: Saturn Hubble campaign 2004

(WHICH INSTRUMENTS, RELEVANT KEYWORDS, HIERARCHY LIST)

3 - Problem description

Modelling of the *Solar wind-magnetosphere-ionosphere coupling e.g. reconnection rates, cusp processes and compare it with existing data sets, Variations of particle fluxes, pitch angle distributions, energy spectra, aurora brightness,... as indicators of solar wind influence.*

(DESCRIPTION OF PARAMETERS NEEDED)

4 - Current solution: the way scientist presently work to select data of interest, to access these data and to process it.

PDS, MAPS KP, direct contact between scientists

(HOW WOULD YOU DO IT MANUALLY)

5 - What services users expect from an IDIS to work more efficiently

add new data sets (relevant events on the Sun, additional data sets from missions in Earth orbit and in the heliosphere for a given time period), add new global transport and plasma models, add relevant Laboratory measurements

(MORE DETAILS, WHAT TYPE OF MEASUREMENTS, ASCII-OUTPUT?, PLOTTING ROUTINES?)

6 - Other comments

7 - Key references on science and methodology for this science case

Cowley and Bunce, Clarke et al., Crary et al, Hansen et al., Tomas et al.,...

experience from Earth magnetosphere,...

IDIS requirements

IDIS shall provide a web interface that allows to query the TARGET, a TIME period and an INSTRUMENT type. The result of the query shall be a list of individual missions, their instruments and the time period of available data that match the query. The query shall allow to combine several instrument types.

Example:

- **user input:**
  - **Jupiter, oct2000-feb2001, particle instruments and UV images**
- **IDIS output:**
  - **Galileo**
    - **EPD data available (energy ranges,...)**
  - **Cassini**
    - **MIMI, CAPS**
  - **Hubble**
    - **20 images**

IDIS requirements

- **IDIS shall provide a web interface that allows to query all laboratory measurements that contribute to the analysis of a planetary mission.**

- **IDIS shall provide a web interface that allows to query all models existing that contribute to the analysis of a planetary mission.**

- **IDIS shall provide support to the laboratories to provide the lab data in an agreed format. The support shall include at least the consultancy on data format and standard, software routines for data conversion, ...**