SPACEINN/WP3, Data Handling and Archiving

Deliverable D3.11

Günter Houdek, Jørgen Christensen-Dalsgaard, Eric Michel, Markus Roth

18/12/2013

One of the activities under WP3 is the upgrade of existing data bases. One of the major resources for asteroseismology is the Kepler astroseismic data archive. Kepler data are made available to the Kepler Astroseismic Science Consortium (KASC) members through the Kepler Asteroseismology Science Operations Centre (KASOC) in Aarhus for each star in KASOC, in a well certified and documented way.

One of the activities under SpaceInn is to secure full integration of the supplementary data which is available.

In the first year of the Project a preliminary inclusion of coordinated ground-based data within KASOC has been conducted. Spectroscopic ground-based data of about 103 red-giant stars in the Kepler field, observed by Thygesen et al. (2013) with the FIES (FIbre-fed Echelle Spectrograph) instrument at the Nordic Optical Telescope, have been ingested into the KASOC database. The current test phase includes so-called merged (with respect to spectral order) stellar spectra in (binary) FITS format of 103 red giant stars. These FITS files are "linked" to the appropriate existing photometric Kepler data and to stellar information already available in the KASOC database.

In addition, meta-data on other existing ground-based observations exist in the data base, too.

These ground-based data were made available via the KASOC web-interface (http://kasoc.phys.au.dk) before the end of December 2013.

The following figures explain how these data sets can be accessed. After login to the KASOC the implemented data sets can be found on the welcome screen (Fig.1) under the tab "Ground-Based". After opening this tab search facilities allow finding information on stellar objects for which ground-based complementary observations are available (Fig. 2). The search can be carried out either by

- Objects: classification, star name, or KIC number (Fig. 3)
- Observation: classification in combination with observation type (photometry, spectroscopy, spectropolarimetry, interferometry), instrument, and time frame (Fig. 4)
- KIC parameters, which include ranges for the position on the sky, stellar parameters like radius and log g, and various magnitudes (Fig 5).
- And all possible combinations of the above (Fig. 6)

The meta data for the search results are listed after clicking on the "Search" button (Fig. 7). The image shows the current table of offered information about ground-based follow-up

observations, which include information about the observed star, the observer and the instrument used for the listed observation(s). An additional column will provide the necessary link to the actual observational data in FITS format. Data can then either finally be downloaded from KASOC, or the PI of the observation campaign can be contacted by e-mail.

Figure 1: Welcome Screen of the Kepler Asteroseismic Science Operation Center at: http://kasoc.phys.au.dk

Figure 2: the search facility for finding ground-based observations.

Figure 3: Search by Objects.

Figure 4: Search by Observation.

Figure 5: Search by KIC parameters.

Figure 6: Combination of all three search options.

Figure 7: Search result. Excerpt of the list of meta information of ground-based observations of solar-type stars already included in the database.