MOnthly TEmperature DAtabase of Spain 1951-2010: MOTEDAS (4) Trend in annual, seasonal and monthly amplitude temperature mean value

Jose Carlos Gonzalez-Hidalgo (1,2), Dhais Peña-Angulo (1,2), Michele Brunetti (3), Nicola Cortesi (1,2), Claudia Simolo (3), and Peter Stepanek (4)

(1) University Zaragoza, Geography, Zaragoza, Spain (jcgh@unizar.es), (2) IUCA-University of Zaragoza,Spain, (3) ISAC-CNR, Bologna,Italy, (4) GCRC AS CR, v. v. i., Czech Republic

The initial results of MOTEDAS dataset (see MOTEDAS Poster 1, 2 and 3) are referred to mean seasonal trends (1951-2010) calculated by Mann-Kendal test. The most remarkable facts are as follows:

- Seasonal mean temperature have risen in the four season.

- The strongest increased in seasonal mean temperature is detected in summer. Also during spring and winter.

- In Autumn significant (p<0,05) positive sign is detected only a coastland areas to the east.

The seasonal amplitudes (Tmax-Tmin) mean value trends indicate:

- Seasonal amplitude differs noticeably between seasons.

- There is no clear trend in winter and spring, only reduced coastland areas to the north (positive trend) and to the southeast (negative) have significant trends.

- North-south spatial gradient emerge clearly insummer, with significant positive trend to the north and negative to the south.

- The same negative trend is detected in autumn to the south.

- Annual pattern resemble to a certain point the summer ones because of dependence of annual trend on summer.

The overall conclusion is that Maximum and Minimum temperature in continental land of Spain, between 1951-2010, have not followed the same pattern, and probably they have been affected both for global factors (GHG) as for local ones, especially Tmin.