



## **Analysis of the daily component of the surface temperature and the wind speed within the Aral Sea region from 1991 to 2010**

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The relation between the diurnal cycle of the wind speed and the surface temperature within the Aral Sea region (40N-50N, 53E-67E) is analyzed for the period 1990-2010. Data are from 65 stations within the RIHMI-WDC databases.

The power spectral density of the wind velocity clearly shows a 24h component (PSDW24) almost during all the year but especially in spring and autumn. For the studied period it the PSDW24 is found to increase almost in all the studied area and especially at the South Western region where the trend is much larger. Exceptions are found at the far North Western and South Eastern hilly areas where the PSDW24 slightly diminishes.

Most of stations were located at least 100 km from the coast line of the Aral Sea so the direct effect of the variation of sea breeze due to the shrinking of the Aral is not expected to drive the general observed trend.

On the other hand several authors have pointed out an increase in the diurnal temperature range (DTR) within the region during all the year. Increase of DTR in the region could enhance the daily variability of the wind flow either directly or triggering secondary mechanisms. However the study of the trend of the DTR based in the RIHMI-WDC data shows different behavior at different regions. Detailed analysis of a) the correlation and phase lag between the diurnal harmonic of the surface temperature and wind speed and b) the DTR and WPSD24 trends at different areas and for different seasons is presented and discussed.

Acknowledgments: CLIMSEAS project FP7-IRSES-2009 (ref. 247512)