Hydrol. Earth Syst. Sci. Discuss., 2, S226–S227, 2005
www.copernicus.org/EGU/hess/hessd/2/S226/
European Geosciences Union

Hydrology and Earth System Sciences Discussions

Interactive comment on "Influence of solar activity on hydrological processes" *by* J. Pérez-Peraza et al.

J. Pérez-Peraza et al.

Received and published: 30 May 2005

The comment is highly interesting, since it is now widely accepted that along with the structural changes of the solar interior the variations of the Total Solar Irradiance (TSI) are also related to the cycle of magnetic solar activity (e.g. Lowry 2004, Foukal, 2003, Chapman et al, 1996, Egorova et al, 2004, etc..). However, the aim of the present work is limited to study whether there exist a clear correlation between solar activity and the level of lakes or not, and if so, to determine if such a correlation is a strong or a weak one. If the correlation is strong, that would invite to model the physical processes involved. For such a goal we have used the conventional indexes of solar activity, which in principle give a global picture of the whole magnetic activity phenomenon at the Sun.

Solar activity manifests in several phenomena such as solar flares, prominences, coronal mass ejections, blast waves, etc. which produce enhancements of the solar emissions: energetic particle and plasma as well as all kind of electromagnetic radiations

from gamma rays up to radio waves. In particular, the wavelengths corresponding to the TSI follow a modulation with the solar activity cycle as described in the previously mentioned references

The present work does not discern among each one of the radiation emissions associated to solar activity, but only the global effect of Solar Activity. The search of a correlation between the variability of TSI, specifically due to solar activity, and the level of lakes is out of the scope of this work.

Lowry, T.S., Eos Vol. 85-22, 217, 2004. Foukal, P., Eos Vol. 84-22, 205, 2003. Chapman, G. A ,et al, Journal of Geophysical Research, vol. 101, no. a6, pages 13,541-13,548, 1996 Egorova, T. et al., Geophysical Research Ltters, vol. 31, l06119, doi:10.1029/2003gl019294, 2004

Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 605, 2005.