Monitoring solar activity with SWAN/SOHO background images

E. Quémerais and J.L. Bertaux

Service d'Aéronomie du CNRS, Verrières le Buisson, France

We present the results of a new method used to derive spatial and temporal variations of the H Lyman alpha flux emitted by the sun in all directions of space.

This method uses the data obtained by the SWAN instrument on SOHO. We show how these maps of solar Lyman alpha flux distributions can be linked to the activity on the solar disk.

Quite often, the activity is related to the presence on the surface of the sun of an active region which appears rather suddenly and may last for several months. These active regions are known to be brighter in Lyman alpha radiation than the quiet sun. Accordingly, they illuminate more interplanetary H atoms through resonance scattering. This excess of illumination related to active regions is clearly seen in full-sky Lyman alpha maps recorded by the Swan instrument on SOHO, including those excesses resulting from active regions which are on the far side of the Sun, i.e. not visible to solar disk imagers.

We show how these maps can be used to predict the evolution of solar indices like the 10.7 cm flux or the MgII solar index.