

**2011 FALL AGU MEETING
December 5-9, 2011**

**Potential scientific output from the visible
channels of EPIC spectroradiometer as part of the
DSCOVR L1 mission**

Alexander Marshak and Jay Herman

In addition to 4 UV channels, the EPIC spectroradiometer will provide measurements at 6 visible (and near IR) channels (443, 551, 680, 687.75, 764 and 779.9 nm) at roughly 10 km spatial resolution. The scattering angles are near backscattering and vary between 165 and 176 degree. Two pairs {680 and 687.75 nm} and {764 and 779.9 nm} represent O2 B- and A-bands (and their references) channels; they will be used for cloud height measurements over land and ocean. The B-band channel will contribute to the more absorbing A-band measurements over bright vegetation. A pair {680 and 779.9 nm} will be used for retrieving vegetation properties. Due to the special EPIC geometry, the illuminated part of the leaves will be always observed. As a result, in addition to the traditional Leaf Area Index (LAI), these observations for the first time will provide the sunlit fraction of LAI. Since the sunlit and shaded leaves exhibit different photosynthetic response to incident radiation, these measurements will help to improve global ecological and biogeochemistry models. Finally, a pair {443 and 551 nm} will be used for atmospheric correction. As a by-product of the atmospheric correction algorithm, we also expect to get aerosol optical thickness (AOT) and surface bidirectional reflection function (BRF). The presentation will briefly overview the proposed science algorithms.