

## SESSION VI

### NEW SPACE BORNE SYSTEMS

*Chairperson: Johannes Schmetz*

The sixth and last session of the workshop presented five papers on new space borne systems, new developments and perspectives for future measurements, respectively. This session was a nice finale of the workshop since it stimulated intense discussion that naturally led into the summary presentations of the Working Groups that concluded the workshop.

Bill Smith gave an enlightening talk on the Geostationary Imaging Fourier Transform Spectrometer (GIFTS) which will constitute a breakthrough in measurements from geostationary orbit. With a large focal plane array the instrument can provide full disk images at 4 km resolution with a repeat rate of five minutes. The imagery will consist of thousands of channels with very high spectral resolution thus enabling soundings with high vertical resolution and, hence the tracking of water vapour features at different levels in the atmosphere.

Charlotte Hasager delivered a paper on wind energy mapping using synthetic aperture radar data. Plans are under way to deploy offshore wind energy turbines in the seas around Denmark. This is useful because the wind speed over sea is significantly higher than over land. For planning purposes Charlotte Hasager conducts a detailed study on wind potential over sea using SAR data and physical models. It was noted that this paper presented new aspects to the workshop that had not been addressed at any previous workshop.

Paul Ingmann introduced the Atmospheric Dynamics Mission (ADM) of the European Space Agency (ESA) which will measure the global wind fields in the stratosphere up to about 26 km and in the cloud-free troposphere with a Doppler Wind Lidar (DWL). In addition the DWL will yield information on cloud top heights, the vertical distribution of cloud and aerosol properties.

Ad Stoffelen investigated the expected performance of the Atmospheric Dynamics Mission. He demonstrated a sufficiently large coverage of the measurements on the basis of a statistical analysis of cloud cover. An Observation System Simulation Experiment (OSSE) has been conducted which shows the expected overall positive impact of the new DWL wind data on numerical weather forecasts.

Jim Purdom made the final presentation of the workshop on the combined capabilities of active and passive space borne systems. He highlighted outstanding previous research on the tracking of atmospheric motion and recalled the need for a good understanding of the physics of the observations that may be often forgotten in statistical presentations of problems. Clearly this calls for research on case studies. Convincing examples were presented on recent achievements ranging from SAR image data to rapid scans from geostationary satellites. A lively discussion on the utilisation of the space observations in NWP and mesoscale models emerged from J. Purdom's talk emphasising the need for early preparation for new space borne systems in order to have the relevant science ready for applications of the new data.

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