



CGMS-39 EUM-WP-14
v1, 8 September 2011
Prepared by EUMETSAT
Agenda Item: G.II/10
Discussed in WGII

**EUM REPORT ON SUPPORT TO THE WORKING GROUP FOR NOWCASTING
RESEARCH OF THE WORLD WEATHER RESEARCH PROGRAMME (WWRP-
WGNR)**

The Working Group for Nowcasting Research (WGNR) is a part of the WMO World Weather Research Programme. Established in 2001, past activities of the group encompassed nowcasting Demonstration Projects, including necessary training. The Working Group had realised that knowledge on the potential of satellite observations for nowcasting purposes had not been well represented and thus asked for the participation of a EUMETSAT representative in the group. In a recent WGNR meeting, EUMETSAT and NOAA informed the group on the nowcasting capabilities of MSG and of the future programmes GOES-R and MTG. The value of these observations on otherwise data sparse regions (e.g. Africa and parts of South America) was highlighted and acknowledged by the Working Group.

Recommendation proposed: CGMS-39 WGII to take note

EUM Report on Support to the Working Group for Nowcasting Research of the World Weather Research Programme (WWRP-WGNR)

1 INTRODUCTION

The Working Group on Nowcasting Research (WGNR) is a component of the WMO Commission on Atmospheric Sciences (CAS) Open Programme Area Group on the World Weather Research Programme (OPAG-WWRP). The Working Group has been established in 2001 and is tasked to advance the science of nowcasting, including meteorological processes and predictability, promote and aid the implementation of nowcasting in the WWRP framework and within National Meteorological Services and among their end users, including numerical modelling and assimilation of very high resolution data. The Working Group is furthermore tasked to conduct Research Demonstration Projects (RDPs) and Forecast Demonstration Projects (FDPs) to advance the underlying science as well as to develop, compare, validate and exchange various nowcasting techniques.

WMO-WGNR specifically conducted two of these demonstration projects, covering the Beijing and the Vancouver Olympic Games.

In 2009, the Working Group organised the International Symposium on Nowcasting and Very Short Range Weather Forecasting (WSN09) in Whistler, British Columbia (Canada). The next symposium of this kind is planned to take place in Rio de Janeiro (Brazil) in 2012.

Knowledge on the potential of satellite observations for nowcasting purposes had not been well represented in this Working Group. In 2010, Mr. Paul Joe, chair of WGNR, thus recommended the membership of a EUMETSAT representative in this group, starting with the February 2011 Working Group meeting at WMO headquarters in Geneva.

2 WGNR MEETING IN GENEVA, FEBRUARY 2011

The full agenda of this meeting is provided in Annex I. Presentations are available on the WMO web site (http://www.wmo.int/pages/prog/arep/wwrp/new/nowcasting_research.html), together with the list of decisions and actions taken during this meeting.

The Working Group identified a number of gaps in the WWRP nowcasting programme, as e.g.

- Links to aviation need to be improved

- Links to hydrology need to be improved

- Links with the Working Group on Mesoscale Forecast Research need to be improved to enable seamless nowcasting

- FDP for a Developing Country should be planned, with the aim of strengthening local research capacity within a region

- Test Bed concept should be developed

With respect to the added value of satellite observations, focus was on the FDP for a Developing Country, noting the general lack of radar observations in such countries.

In this context, Mr. Tom Butcher (WMO) presented a possible project for the Lake Victoria region: The Lake is often hit by nocturnal severe thunderstorms, thus affecting fishermen’s safety on the Lake (death toll is >1000 persons per year). The project aims at using the existing mobile phone services to issue warnings, and it is coordinating its work with the proposed Severe Weather Demonstration Project (SWFDP) for East Africa, an activity within the Disaster Risk Reduction Programme of WMO. WGNR will provide scientific support to this activity. The usefulness of satellite data for convection nowcasting is a well established process and is directly applicable to the Lake Victoria conditions. EUMETSAT can support the regional scientific capacity building through its regular training programme for the African users. For illustration, Figure 1 shows the satellite view of a developing storm.

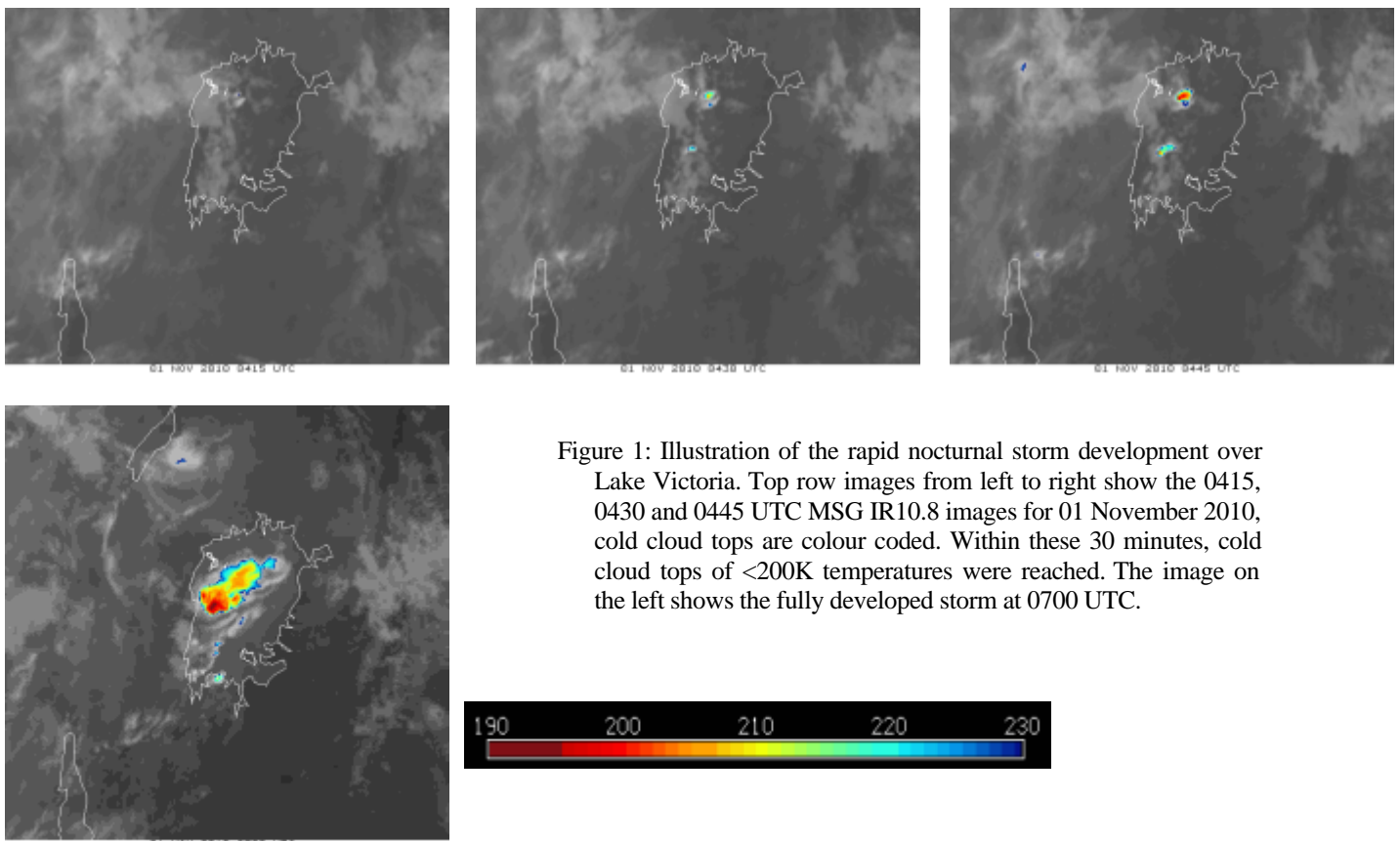


Figure 1: Illustration of the rapid nocturnal storm development over Lake Victoria. Top row images from left to right show the 0415, 0430 and 0445 UTC MSG IR10.8 images for 01 November 2010, cold cloud tops are colour coded. Within these 30 minutes, cold cloud tops of <200K temperatures were reached. The image on the left shows the fully developed storm at 0700 UTC.

During the meeting, the Working Group was also informed about the future geostationary observation capabilities (GOES-R and MTG). The use of satellite imagery and the future lightning information was demonstrated through many examples. Knowledge transfer is done through the means of proving grounds, the EUMETSAT Satellite Application Facilities (SAFs), and dedicated working groups like the Convection Working Group. The WGNR sees the potential of a “satellite and space based lightning only” end to end warning process, especially for developing countries without a reliable radar network.

3 CONCLUSIONS

The WMO-WGNER is involved in a number of activities, where (additional) satellite information can be important and should play a larger role than during past Demonstration Projects. Especially the advent of even more advanced and higher resolution (on a spatial temporal and possibly spectral scale) satellite data, including the MTG and GOES-R lightning instruments, will increase the nowcasting potential of satellites. WGNER is regarded as an important asset in further promoting the use of satellite data for nowcasting purposes.