EMS Annual Meeting Abstracts,
Vol. 6, EMS2009-289, 2009
9th EMS / 9th ECAM

9th EMS Annual Meeting
9th European Conference on Applications of Meteorology
High resolution meteorology
- applications and services

NOWCASTING OF IN-FLIGHT hazard thunderstorm, supporting aircrew and ATM decision making process

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The Integrated Project FLYSAFE allows to define and experiment Weather Information Management Systems (WIMS). These systems provide met data on several weather hazards: icing, clear air turbulence and thunderstorms.

The thunderstorm system, called CB WIMS (Cb for Cumulonimbus), has been developed with involvement of partners from Météo-France, German Aerospace Center (DLR), ONERA, UK-Met Office and the University of Hannover. In order to reduce the complexity of a real thunderstorm to a practical model which can be used onboard aircraft for informing pilot of hazard area, it is been represented as bottom and top hazard volumes. The bottom volumes are defined from ground RADAR network and has two levels of hazard severity. The top volume is defined on satellite data and includes only one level of hazard severity.

In this presentation, we will focus on test flights operated during summer campaign in August 2008, and more precisely on flights operated by the research plane of Météo-France (ATR42). Through different case studies, we will point out the important contribution of CB WIMS to complete the pilot view of thunderstorm hazards which is available from the single board RADAR. Indeed, in addition to an overview of thunderstorm hazard, the CB WIMS provide relevant information on thunderstorm evolution too. The bottom volume can also indicate hazard area in lower layers not necessary detected by onboard radar but which can result in a moderate turbulence for the plane.