Satellite Imagery Training for a non-meteorological community - the Air Traffic Controllers

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OBJECTIVE

Present “WHY” and “HOW” ROMATSA’s air traffic controllers (ATCOs) are trained in using satellite imagery, and also some ideas for “WHAT’S IN THE FUTURE?”. 
CONTENTS

- INTRODUCTORY

- WHY?

- HOW?

- WHAT’S IN THE FUTURE?
INTRODUCTORY
Briefly ... meteorological services in ROMANIA ...

- National Meteorological Administration,

- Army Meteorological Service,

- ROMATSA Aeronautical Meteorological Service,

  each of them belonging to different ministries.
ROMATSA

provides all Air Navigation Services as defined by ICAO:

- Air Traffic Services,
- Air Information Services,
- Communication, Navigation, Surveillance,
- Search And Rescue (partly),
- Aeronautical MET Services.
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WHY?
MET Satellite Data and Air Traffic Management

Because:

MET data (including MET satellite data) contribute to the safety, regularity and efficiency of flights.

And therefore:

several ATM domains are dependent on MET satellite data…
MET Satellite Data and Air Traffic Management

...the following ATM domains are influenced by the impact of MET satellite data:

- Air-Ground Datalink,
- Flight Data Processing and Distribution (FDP&D),
- Air Traffic Services (ATS).
MET Satellite Data and Air Traffic Services

Due to the safety implications of the services provided, ATS is the most important element in ATM.

Most impact of the MET satellite data is on these two ATS sub-domains:

- ATC Tools,
- ATC Human factor: the Air Traffic Controllers (ATCOs)
MET Satellite Data and Air Traffic Controllers

Suitable formats and content of MET satellite data are available for direct use of the ATCOs through a user friendly HMI.

The HMI is located in the ATC room and is integrated in the ATC console.
MET Satellite Data and Air Traffic Controllers

MET satellite data available on HMI include:

- IR and VIS images in a sea-mask presentation;
- Dual presentation formats: “Europe” and “Romania”;
- Position in latitude/longitude for every selected point;
- Customizable overlays including boundaries, report-points, radionavigation aids and air traffic routes easily to activate/desactivate;
- Altitude in flight levels for every selected point related with temperature using the ICAO std. atmosphere correlation scale;
- 4 looping speeds animations back to 6 hours available for both formats in IR and VIS.
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HOW?
Sat. Img. Training and Air Traffic Controllers

By integrating satellite imagery modules into ATCOs courses!
Sat. Img. Training and Air Traffic Controllers

Modules related to satellite imagery are included in three categories of courses for ATCO’s:

- Ab initio courses – mandatory,
- Licence-conversion courses – mandatory,
- Refresher courses – by request.
Sat. Img. Training and Air Traffic Controllers

The satellite imagery course module is part of the aeronautical meteorology section (in respect with ICAO doc. 7192, part F-1).

The curricula includes both *theory* and *practical applications*. 
Sat. Img. Training and Air Traffic Controllers

Theory includes:

- Satellite types,
- Basic features and characteristics of the MSG satellite,
- Satellite imagery: types of images,
- Primary interpretation of satellite VIS and IR imagery (mainly CB clouds).
Sat. Img. Training and Air Traffic Controllers

*Practical applications* include:

- Using the dedicated HMI,
- Using criteria for discriminating between IR and VIS imagery,
- Identifying CB clouds on IR and VIS imgs,
- Correlating information and applying rules of the thumb (the “W&W” rule)
- First guess appreciation of 2D+T evolution of the CB clouds
Sat. Img. Training and Air Traffic Controllers

THE “W&W” RULE:

applies to clouds that have convective pattern/shape;

If:

1. cloud is White in IR channel = high cloud and
2. cloud is White in VIS channel = thick cloud

Then: it’s a CB cloud
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WHAT’S IN THE FUTURE?
Sat. Img. Training and Air Traffic Controllers

More satellite information correlated to aviation hazards to be included in the ATCOs training, by using RGB composites:

e.g.

- Icing in clouds (02,04r,09),
- Most vigorous storm CBs or CB stage evolution (12,12,09-04 / 10-09,09-04,09 / 02,04r,09)
Thank you!