Summer 2023

No Compromise on Safety

Are you Ready, Resilient and Responsive enough for this summer's challenges?

SUMMER CAMPAIGN TIMELINE

26 May Draft SIB

- Draft SIB for circulation and commend by Task Force/ Advisory Bodies.

30 May to 2 June EASA Safety Week

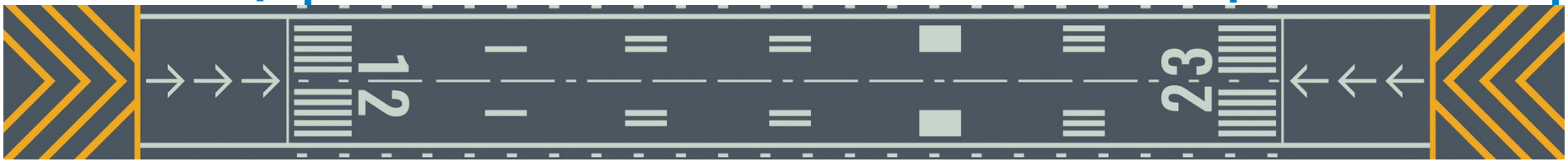
- Virtual event with 7 panel-based webinars over 4 days.
- Covers Cross-Domain, Air Ops, Aerodromes/ GH, Maintenance, Flight Crew Training/ ATO, ATM/ ANS, Cyber
- Recordings will be made available on YouTube

Week of 5 June SIB and Campaign Material Published

- SIB published.
- Campaign promotion material made available to industry.
- LinkedIn posts used to highlight key themes and topics.
- Podcast interviews.

Follow Up Activities

- 19 June - Unruly Passengers Week with 2 Webinars and Campaign.
- Summer Task Force Follow Up
- July/August - Further promotion of Occurrence Reporting



Theme: No Compromise on Safety

Are you Ready, Resilient and Responsive enough for this summer's challenges? Rules provide the baseline, identify and manage your risks and don't forget to look after your people.

Ready	Have enough competent people and the resources you need to manage risks effectively so that you can ensure safe and effective operations.
Resilient	You are prepared for any operational challenges and external threats and support your staff to perform to their best. You don't push the boundaries of the rules and are on guard for risk transfer.
Responsive	You have the mindset to promote safety reporting and encourage collaborative safety conversations. You react positively and quickly to challenges or changing situations and communicate effectively.

Wed 31 May (1400-1530) ATM/ANS - MET

Severe weather and traffic during summer

1 Opening of Session
Augustin Klus (Moderator)

2 Panel Discussion
Philipp Wächter - Austrocontrol
Klaus Sievers – ECA
Viktoria Fitova – Bulatsa
Christopher Peregrine- NM

Registration Link
Youtube Livestream

Slido:
- #EASASummer2023
- Code oowwqa

ECA
European Cockpit Association

Weather: flying safely

Klaus Sievers
Klaus.Sievers@VCockpit.de

What does ECA stand for ?

“Piloting Safety”

Our Mission

ECA represents the collective interests of its Member Associations at European level, striving for the **highest levels of aviation safety** and fostering **social rights** and **quality employment** for pilots in Europe.

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Content

Relevant Information

Deliver relevant MET (meteorological) information into the pilots' hands. Do not simply store information in computers

» Make the information human readable, i.e. good graphical representations

» Ensure access to the information, the "connectivity"

» Ban black and white printers for MET documentation

Coordination

Ensure that ATC/ATM works with relevant MET across borders, in a coordinated way

» Human readable MET information at controller and supervisor positions

» Arrangements, 'playbook' - style, pre-agreed management of traffic

MET Portal

Build a MET-Portal for Europe such as www.aviationweather.gov for easy access to information and showcase developments ("test bed") to real pilots

» Cooperation between MET-Services in Europe

» Cooperation with research institutions

GNSS Dependence

Re-think the dependence of SESAR on the GBAS and other GNSS approach procedures in light of the research results of SESAR project 15.3.4 – Task 6: GNSS vulnerability assessment. Ensure that adequate conventional navigation facilities are retained and procedures for degraded GNSS operations are developed.

TAF

Halve the time between TAF (Terminal Aerodrome Forecast) from 6 hrs to 3 hrs in the Europe

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Sources & links on slide 16

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Demonstration Details and Schedule

- Number of pilots trained:
  - Delta: 367
    - 767-300, 767-400, 777, A330, A350 (167 total)
  - United: ~10 Line Check Airmen
    - 777 and 787
  - American: ~40 Line Check Airmen
    - 777-200
- Flight Routes:
  - CONUS to/from international destinations
    - Inter-Tropical Convergence Zone
  - Route seen beyond range of onboard radar
    - **Improved situational awareness**
- Demonstration schedule:
  - Began July 2018 with Delta
  - United and American began spring 2019
    - Gov't shutdown slowed start
  - Ended 25 December 2019
  - 3 weeks in Aug-Sept, average 26 flights/day

NCAR | RESEARCH APPLICATIONS LABORATORY

kessinge@ucar.edu

Remote Oceanic Meteorology Information Operational (ROMIO) Demonstration

Cathy Kessinger[1],

ECA European Cockpit Association

Sources & links on slide 16

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Conclusions:

- fuel saving
- less time
- better Crew Coordination
- improved situational awareness

Remote Oceanic Meteorology Information Operational (ROMIO) Demonstration

Cathy Kessinger[1],

ECA European Cockpit Association

Sources & links on slide 16

Hot topic: Damage and Injuries due to ´´Clear Air Turbulence´´

severe turbulence : pilots´ view

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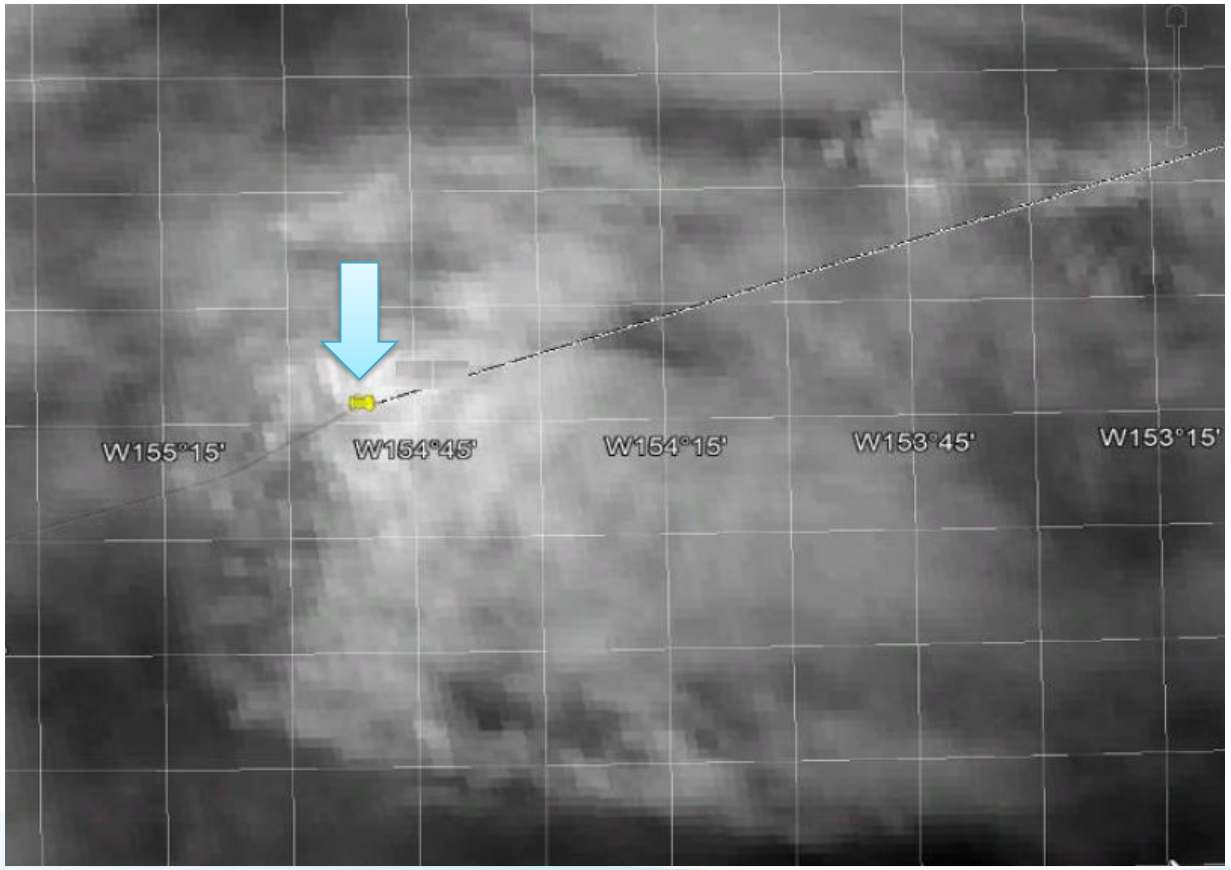
Hot topic: Damage and injuries due to ´´Clear Air Turbulence´´

Often, not CAT but Convectively Induced Turbulence !

Aircraft in convective cloud: 30+ injured.



Sources & links on slide 16

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Hot topic: Damage and injuries due to ´´Clear Air Turbulence´´

Why ?

Sources & links on slide 16

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Coordination

Ensure that ATC/ATM works with relevant MET across borders, in a coordinated way

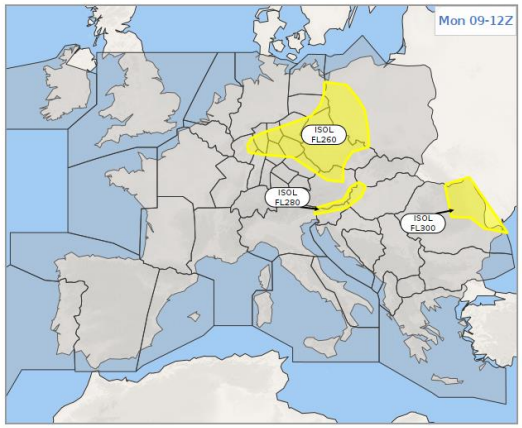
» Human readable MET information at controller and supervisor positions

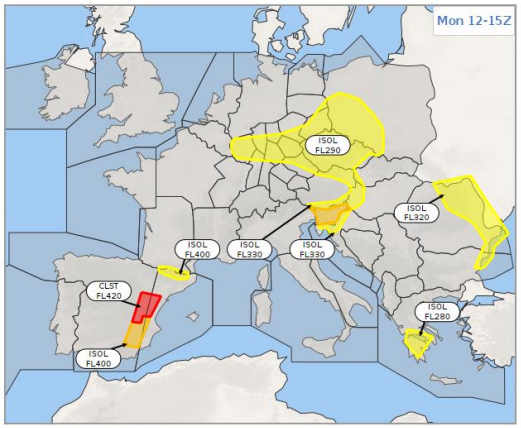
» Arrangements, 'playbook' - style, pre-agreed management of traffic

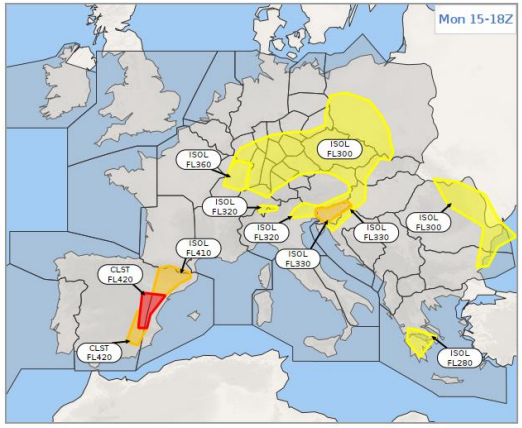
EUMETNET
EUROPEAN METEOROLOGICAL SERVICES NETWORK

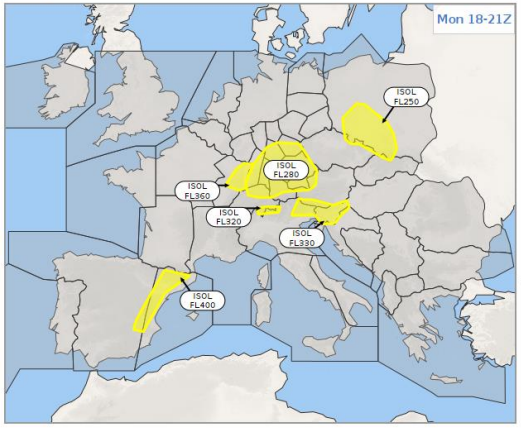
D-0 Cross Border Convection Forecast
issued 01/08/2022 07:00 UTC, valid 01/08/2022

Forecast lead: Belgium









Stable conditions due to a ridge of high pressure over France, Italy and the Balkans.

A trough is still situated along the extreme east of Europe enhancing instability over E Romania (Tops FL300-320). The activity decreases during the day as the trough is moving eastwards.

Weak frontal structures are situated over Central Europe and will bring some instability. This will result in rather shallow convection (Tops FL250-320). Very isolated Tops can reach FL360.

ISOL CBs, mainly caused by daytime heating appear over Spain and can turn into CLST in afternoon (Tops FL400-420). The activity will cease during the evening.

Very likely	ISOL	CLST	WSPR
Likely	ISOL	CLST	WSPR
Less likely		CLST	WSPR
Occurrence of CB clouds	Isolated	Clustered	Widespread

Sources & links on slide 16

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MET Portal

Build a MET-Portal for Europe such as www.aviationweather.gov for easy access to information and showcase developments (“test bed”) to real pilots

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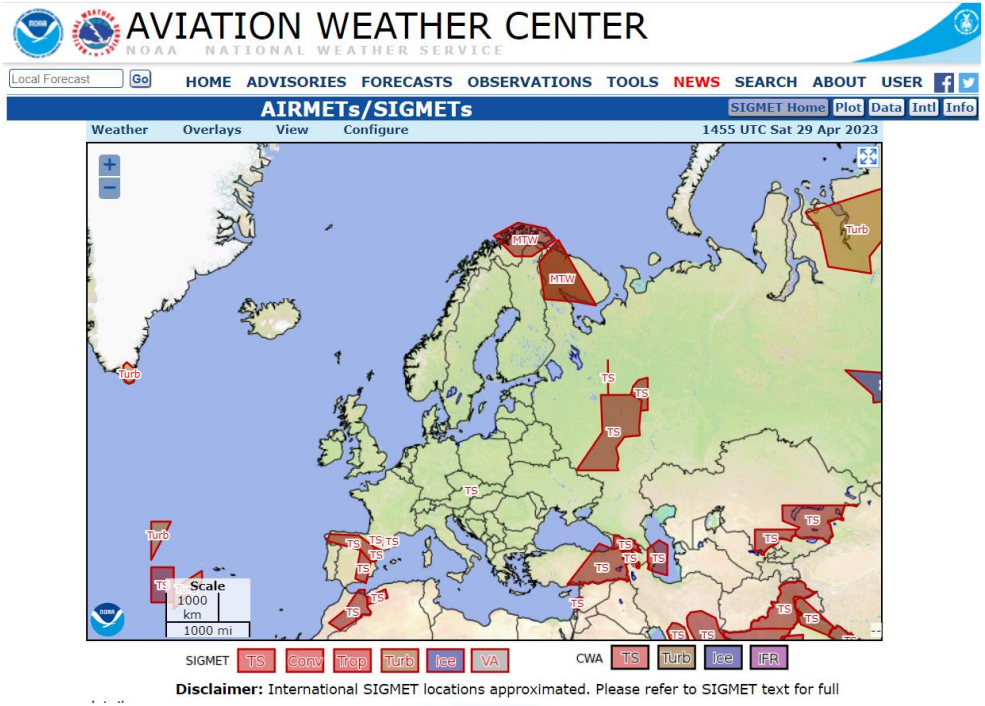

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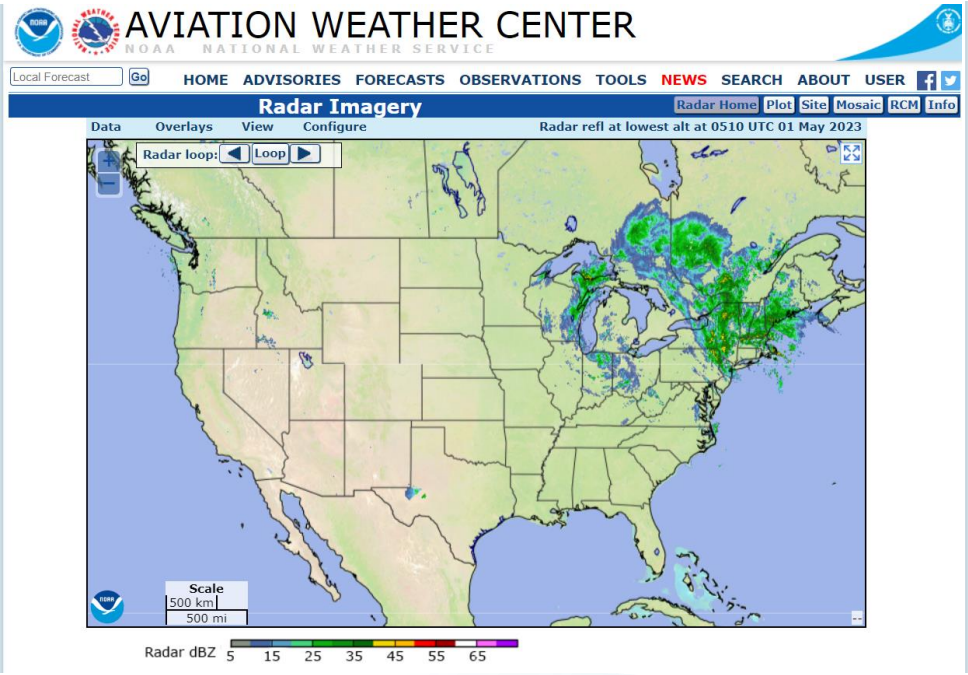

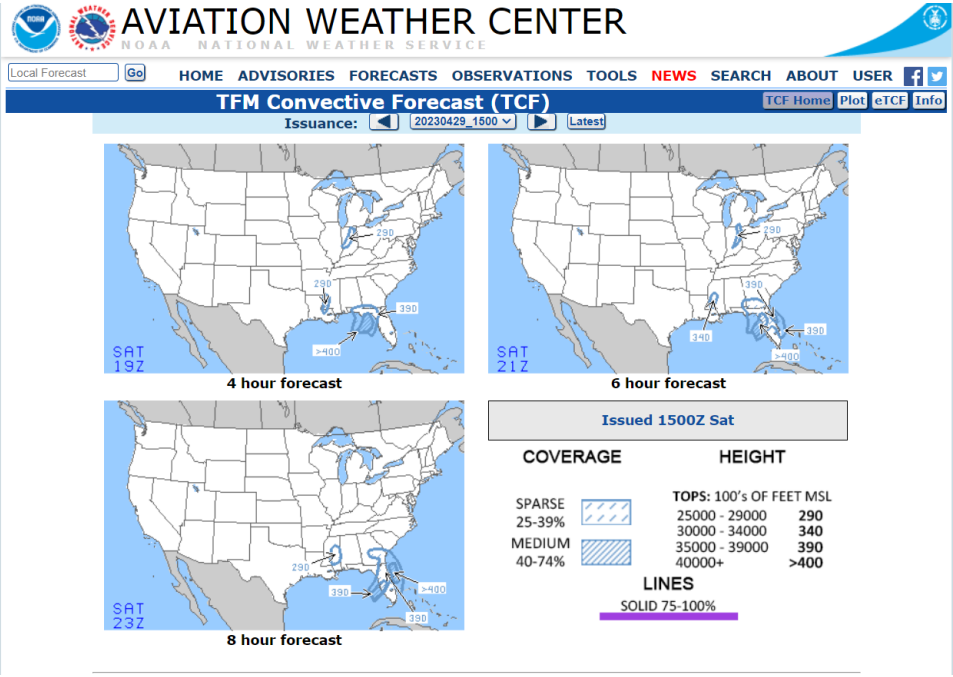

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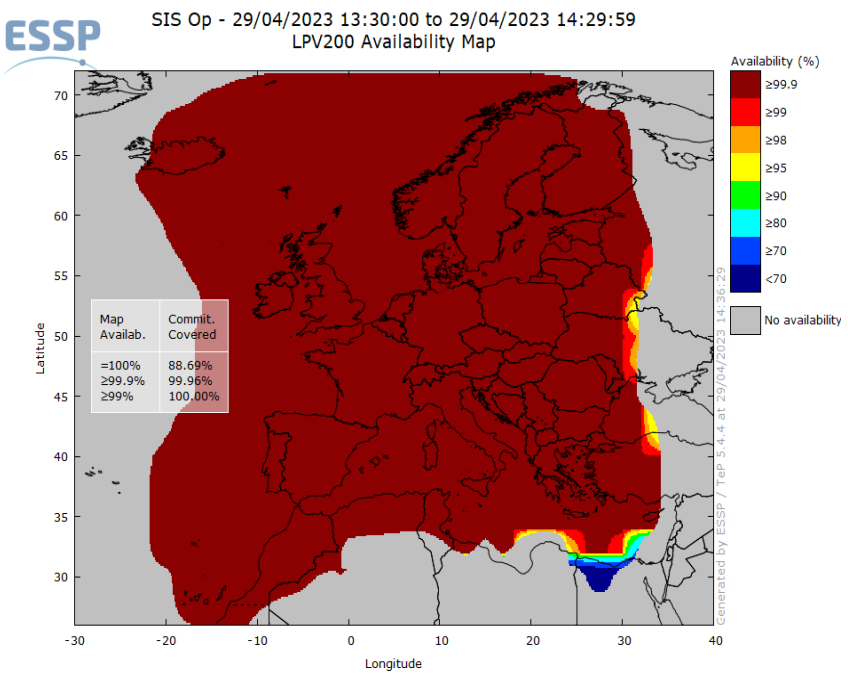
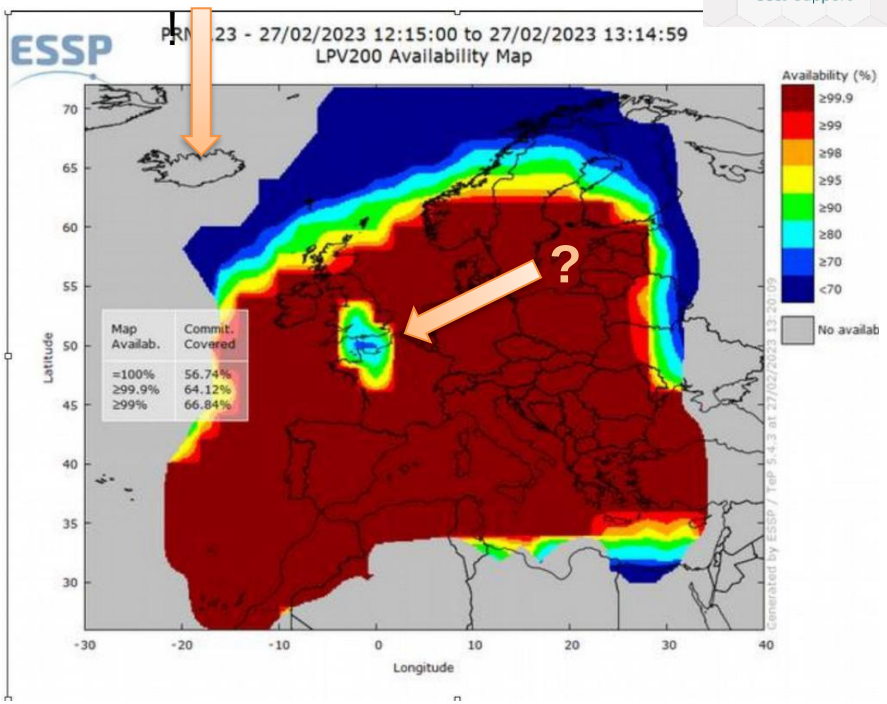
GNSS Dependence

Re-think the dependence of SESAR on the GBAS and other GNSS approach procedures in light of the research results of SESAR project 15.3.4 – Task 6: GNSS vulnerability assessment. Ensure that adequate conventional navigation facilities are retained and procedures for degraded GNSS operations are developed.

LPV ? NO !



EGNOS: normal day, 29.4.2023



EGNOS: coverage severely reduced due to space weather.

Pilots don´t get ICAO SWx advisories !
EASA MET.TR.215 is beeing ignored.

red = good. **blue** = bad

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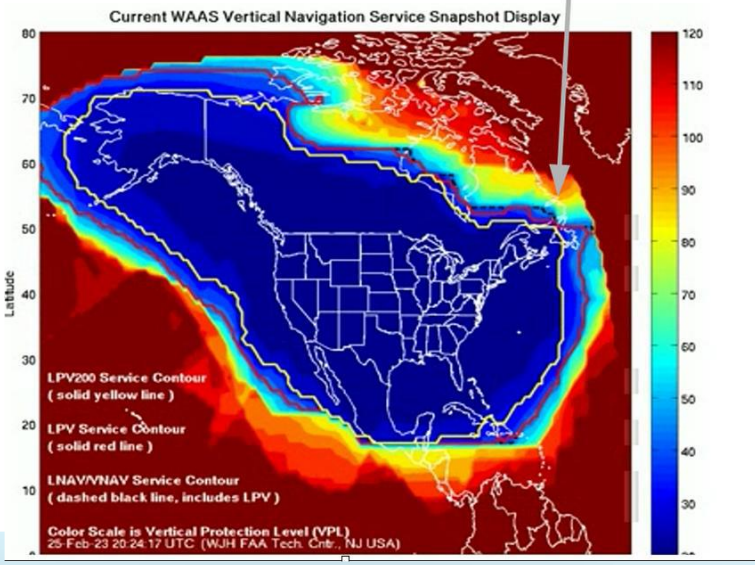
SPACE WEATHER: IT IS REAL !!!

4 AIRCRAFT, 2 AIRPORTS >

NEAR SIMULTANEOUS LPV FAILURE !



Report from Canadian CADORS system. Occurrance: 25 Feb 2023

Report:

2023Q0875

Date Entered: 2023-03-07

Narrative: On approach for Runway 25 at Kuujjuaq, QC (CYVP), an Exact Air Inc. Beech A100 (C-FLTS/ET823) from Tasiujaq, QC (CYTQ) to Kuujjuaq, QC (CYVP) mentioned having lost the localizer performance with vertical guidance (LPV) in lateral navigation (LNAV) and during the previous approach for CYTQ. Following this, an Air Inuit Ltd. de Havilland DHC-8-314 (C-FIAI/AIE827) from Kangiqsualujjuaq, QC (Georges River) (CYLU) to Kuujjuaq, QC (CYVP) mentioned having the same problem when on approach for Runway 25. An Air Inuit Ltd. de Havilland DHC-6-300 (C-GTYX/AIE659) from Kangiqsujuaq, QC (Wakeham Bay) (CYKG) to Kuujjuaq, QC (CYVP) that was following C-AIE827 had the same problem on approach for Runway 25 at CYVP and for its previous approach at CYKG.

ICAO SWx ADVISORY ? None known
NOTAM ? None issued

red = bad. **blue** = good

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TAF EDDF 290500Z 2906/3012 24004KT 9999 BKN040
BECMG 2906/2908 31008KT
BECMG 2918/2921 02005KT SCT040
BECMG 3006/3009 03010KT=

03:00z ??????????

TAF EDDF 282300Z 2900/3006 24004KT 9999 SCT045
BECMG 2900/2903 BKN045
BECMG 2905/2907 30009KT
BECMG 2918/2920 03005KT SCT040
BECMG 3005/3006 04010KT=

TAF EFHK 280535Z 2806/2906 VRB02KT 9999 FEW012
SCT025
BECMG 2807/2809 20010KT
TEMPO 2810/2815 7000 -SHRA FEW040CB
PROB30 2820/2824 BKN006
BECMG 2822/2824 26006KT=

TAF EFHK 280230Z 2803/2903 VRB01KT 9999 BCFG
FEW005
TEMPO 2803/2806 2000 BKN002
PROB40 2803/2806 0600 FZFG
BECMG 2808/2810 20010KT
TEMPO 2810/2815 7000 -SHRA FEW040CB
PROB30 2820/2824 BKN006
BECMG 2822/2824 26006KT=

TAF EFHK 272329Z 2800/2824 24007KT CAVOK
PROB30 2801/2806 0600 FG BKN002
TEMPO 2810/2815 7000 -SHRA FEW040CB
PROB30 2820/2824 BKN006=

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Conclusion

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Mandate needed:

- ACARS
- Connectivity
- live wx on eFB
- Wx radar training
- Wx radar testing

Cross-Border forecast for Pilots

MET Portal for Europe

Respect Space Weather - retain non-space infrastructure

More frequent forecasts

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Sources and links

Slide # 3 https://www.eurocockpit.be/news/pilots-vision-weather

Slide # 5 https://egnos-user-support.essp-sas.eu/aviation-portal/aviation-dashboard
Slide # 5 **https://ifalpa.org/publications/library/space-weather-advisories--3595**
Slide # 6 https://www.nstb.tc.faa.gov/RT_VerticalProtectionLevel.htm
Slide # 7 https://aviationweather.gov/
Slide # 9 Source: DWD / Eumetnet

Slide # 10 & 11 

Slide # 13 Picture: created using NOAA, Flightaware , Google Earth
Slide # 14 Source of pictures: a colleague. Aircraft c/s overwritten in radar picture.

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Thank you for listening !

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Klaus.Sievers@VCockpit.de

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BULATSA

BULGARIAN AIR TRAFFIC SERVICES AUTHORITY

Specific weather phenomena during summer

Are we Ready, Resilient and Responsive for summer weather challenges?

Viktoria Fitova, aeronautical meteorological forecaster, BULATSA

The invisible part of flight

The most important summer weather phenomena

- Convective clouds and associated significant weather phenomena

❑ *Turbulence*

❑ *Lightening*

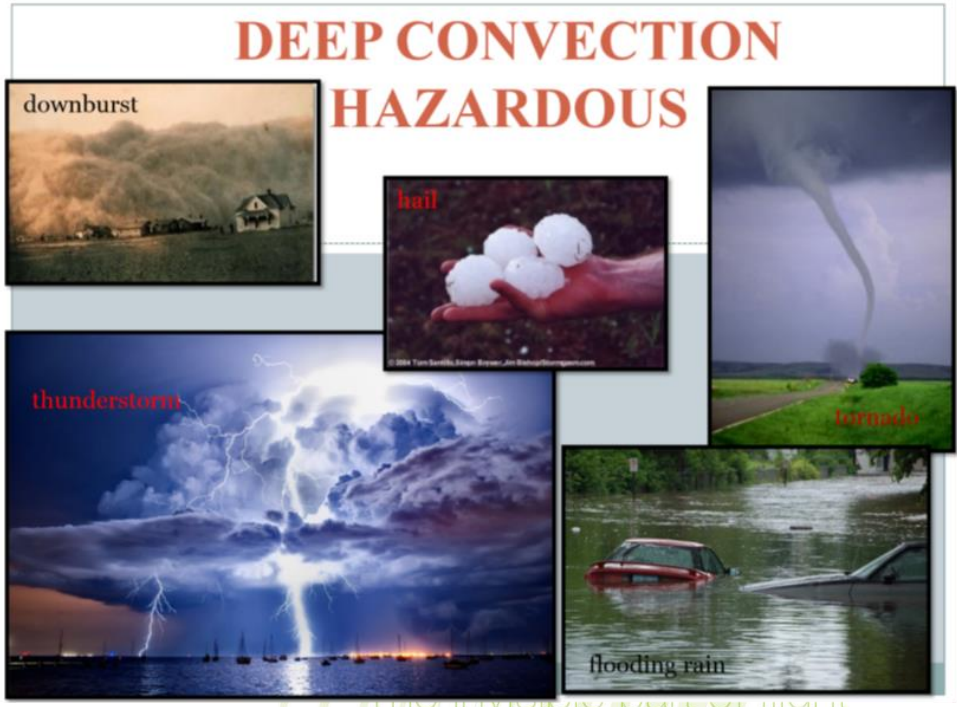
❑ *Wind shear and squalls*

❑ *Hail, icing*

- Extreme heat

The effect of convection in aviation stakeholders

- ATS
- FMP
- Pilots
- Airports
- Aeronautical Meteorological Service Provider



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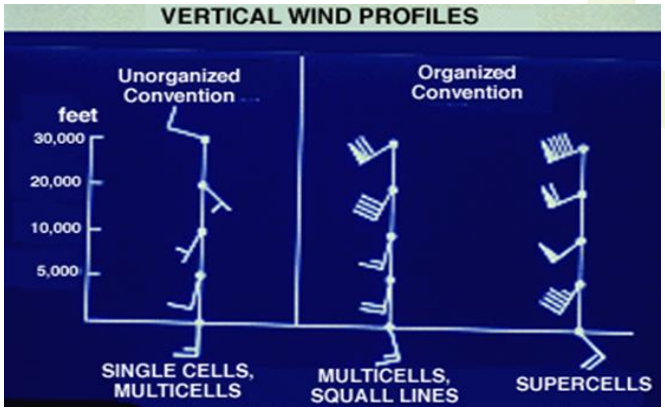
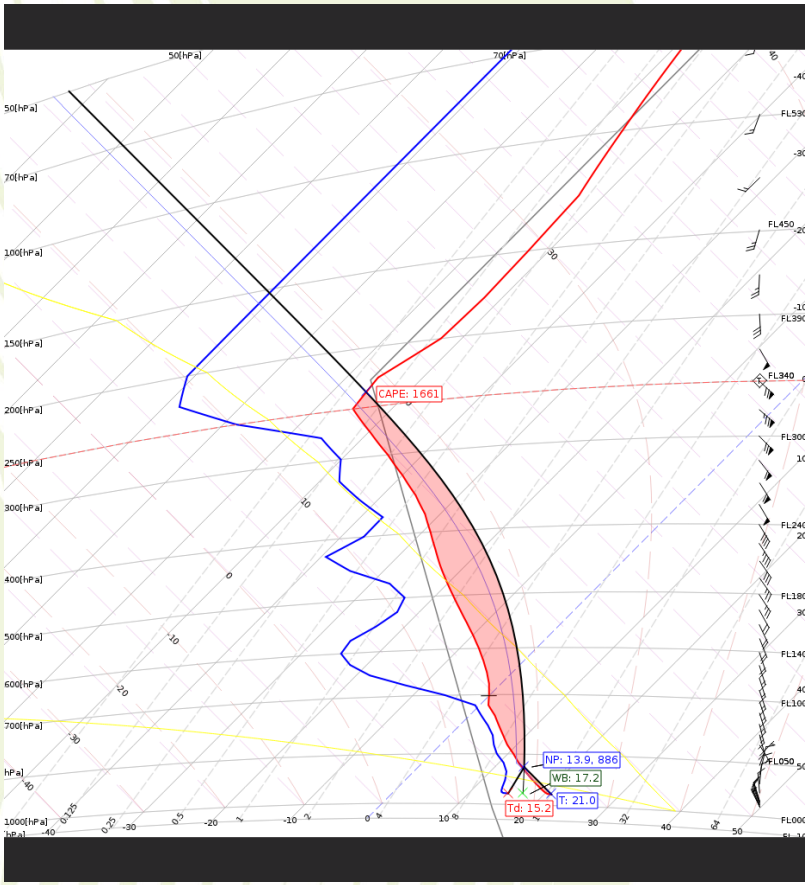
Main ingredients and triggers of convection

- Instability of the air;
- Moisture;
- CAPE (Convective Available Potential Energy);
- Vertical profile of updraft speed.





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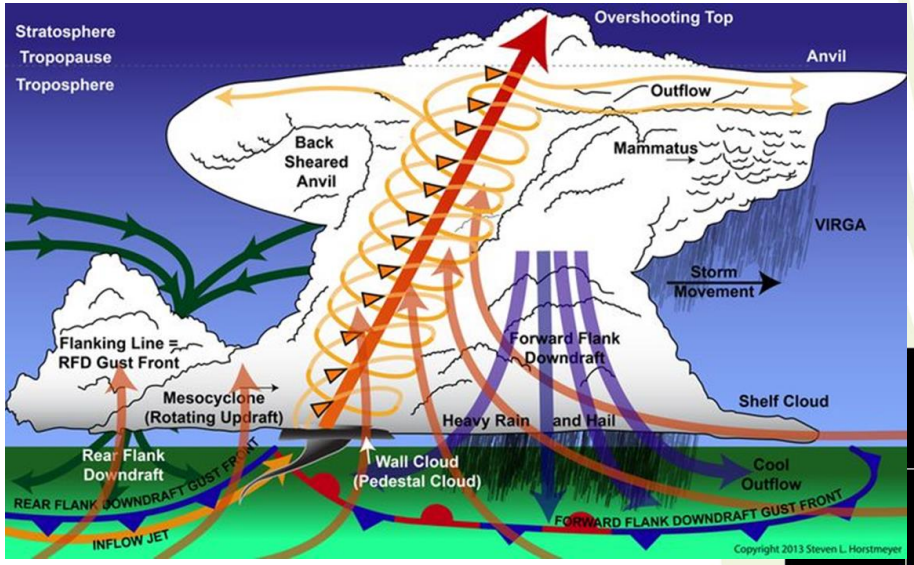
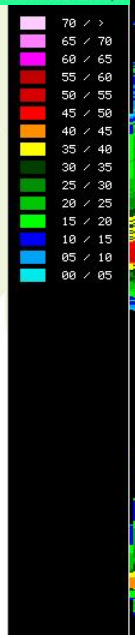
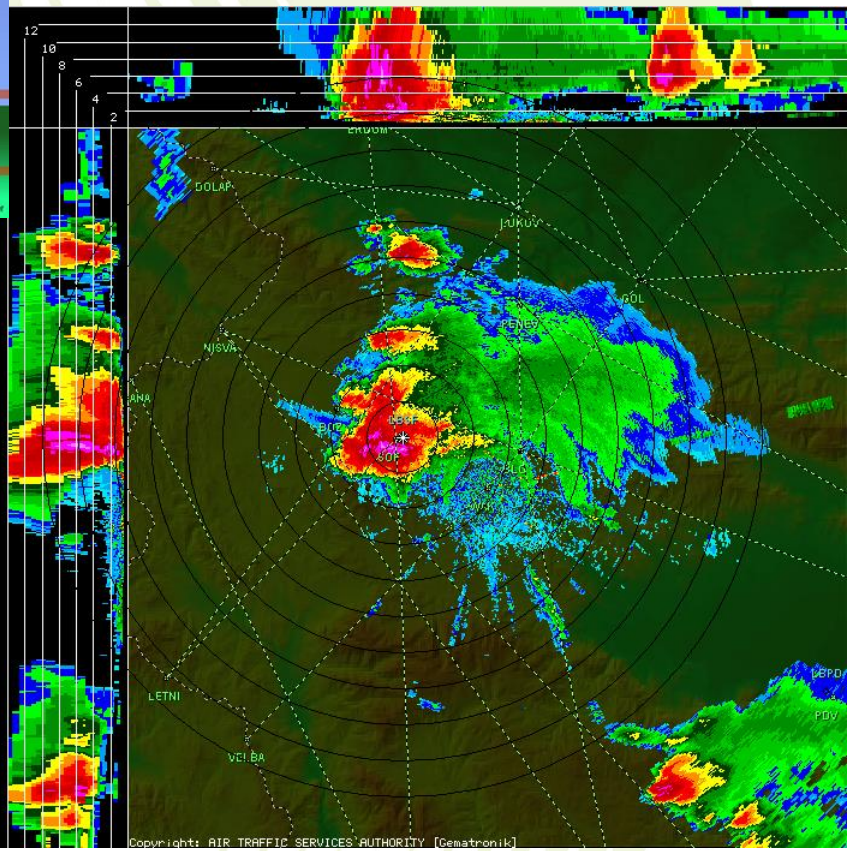
The result of convection – Cb cloud







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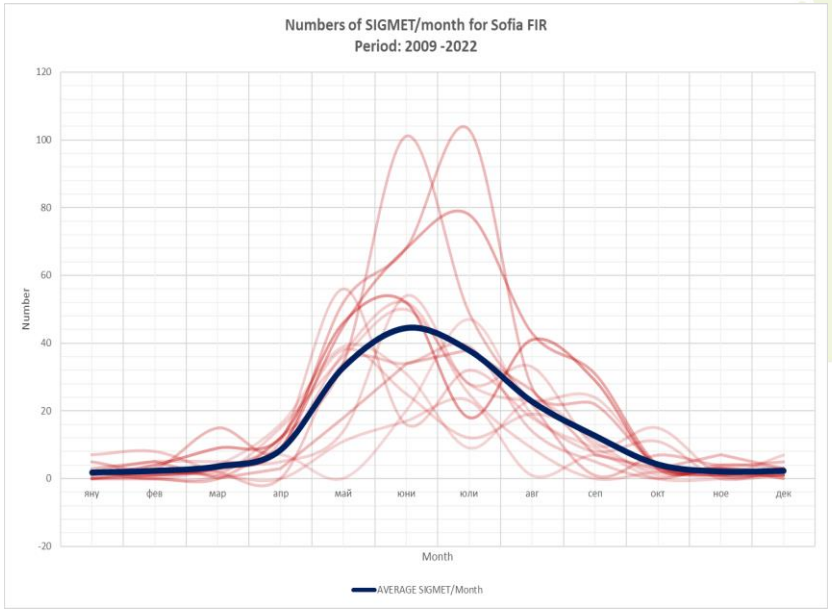
Climate change
or change of user needs

According to **IPCC** –

The Intergovernmental Panel on Climate the global warming is 1.5**℃**.



The main impact based on climate change is the increase in frequency of occurrence of extreme phenomena and an increasing in the intensity of events.

..... or User Needs

- User needs for accurate, well visualized forecast;
- Forecast that is available sufficiently in advance

for tactical and pre-tactical planning;

- Forecast that reflect not only one FIR, but is

extended with surrounding area, and in best case cover big territory (e.g. Europe);

The old fashion aviation meteorology

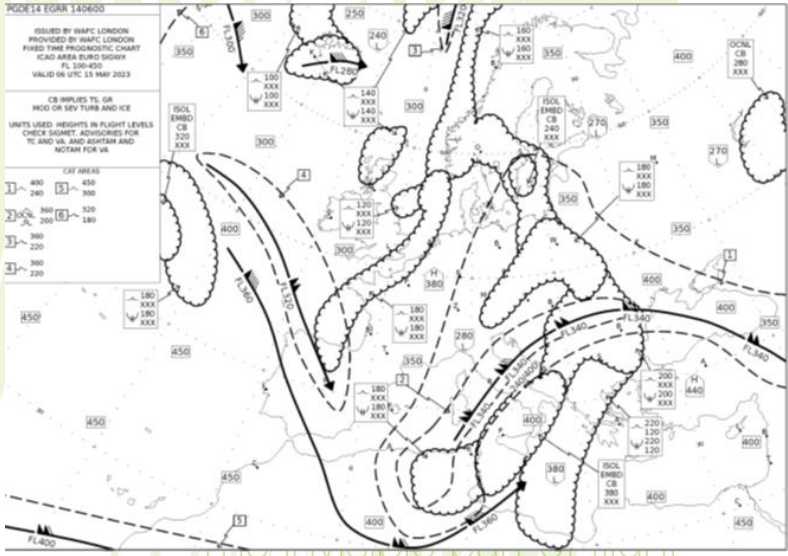
- SIGMET

LECM SIGMET 2 VALID 150600/151000 LEVA-

LECM MADRID UIR SEV TS FCST WI N4456 W00730 - N3840 W00315 -N3741 W00142 - N3855 W00119 - N4425 W00420 - N4456 W00730 FL240/350 MOV SE 40KT NC=

- FORECAST FOR THE AIRPORTS - *TAF, TREND*

- SIGNIFICANT WEATHER CHARTS



Evolution of forecasts and warnings

- **SIGMET coordination**

In case of meteorological phenomena that affect two or more neighbors FIRs the associated meteorological watch office make needed coordination for synchronization of information, for example for cloud top, severity of phenomena, direction of movement, etc.

- **Development to new forecasts according to user needs (Pilots, FMP, ATCO)**

Every meteorological service provider has developed and provide regular forecasts for associated ATS and FMP, in some cases special forecast for airlines

- **Impact based forecast**

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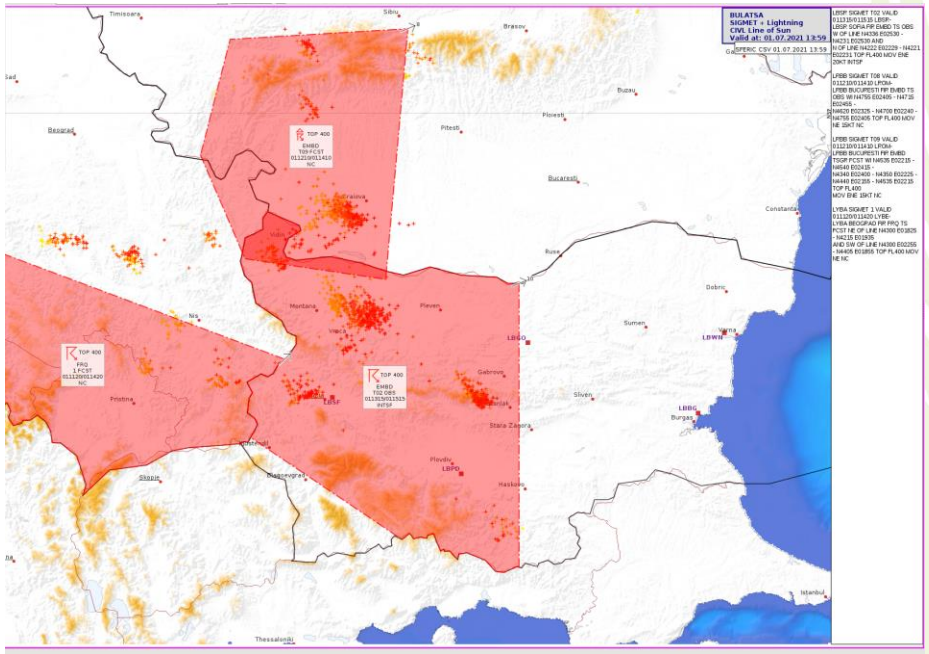
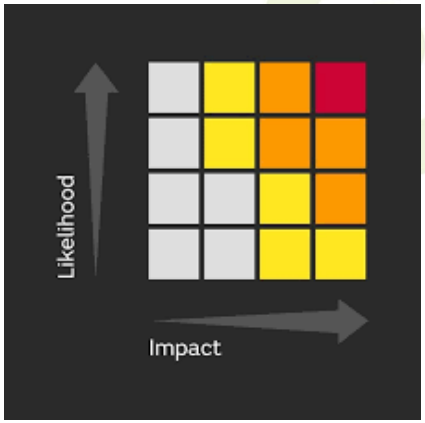
The current situation and future



- Synchronized SIGMETs
- Graphical SIGMETs

The current situation and future

- Issuance of very specific forecast (for local phenomena, or for specific aviation activity)
- Issuance of Impact-based forecast – a shift from describing and communicating what the hazard will be to what the hazard might do.



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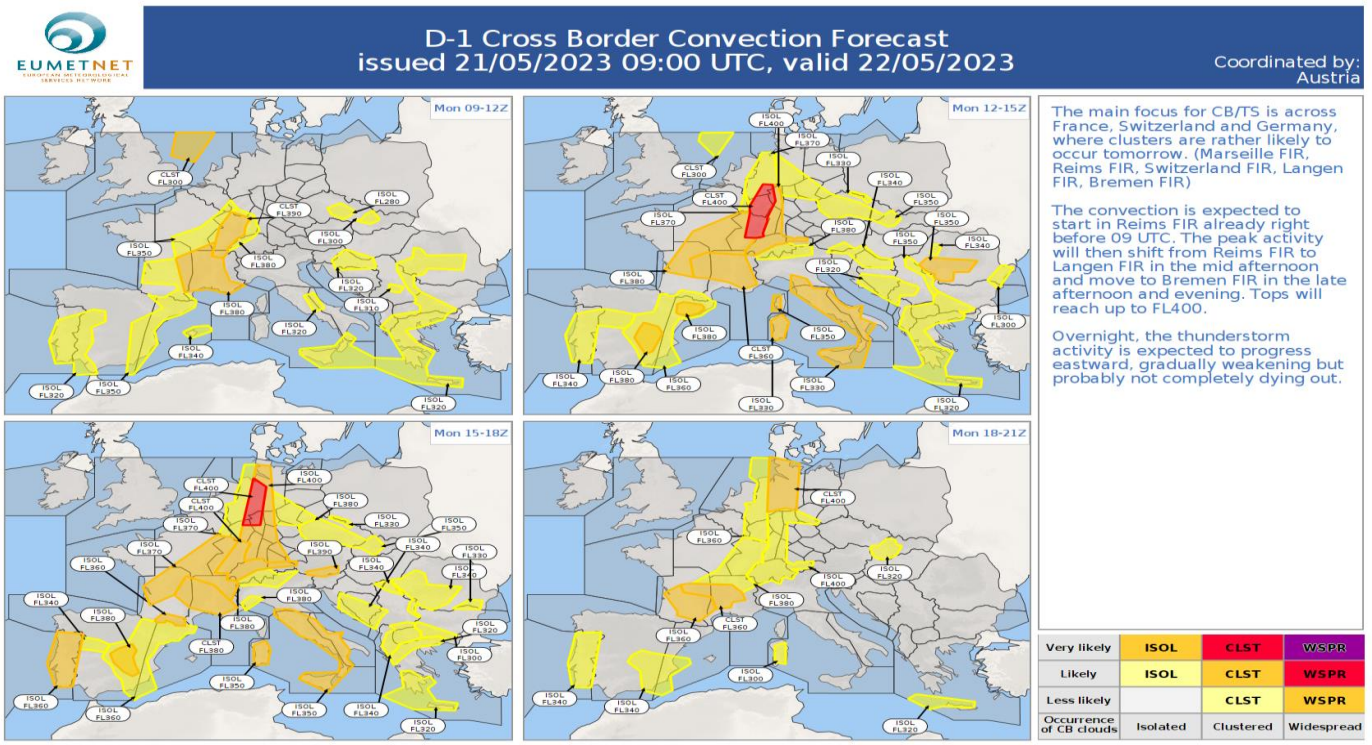
Cross border convection forecast over Europe

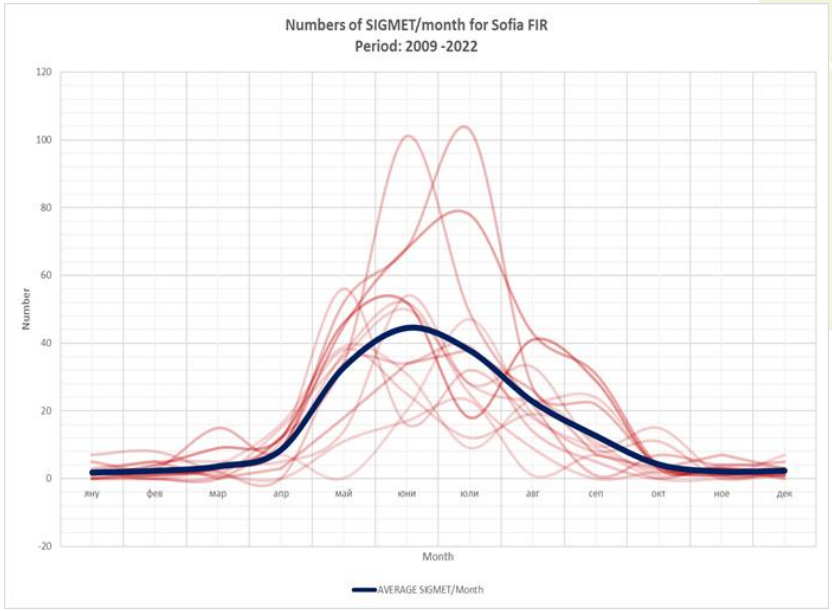


The Cross Border Convection Forecast is provided by the participating meteorological services

Aeronautical meteorological service provider

Increase in type and number of forecast and warnings

- Increase of coordination between meteorological services providers and air traffic services providers/other aviation stakeholders



Increased workload for aeronautical forecaster

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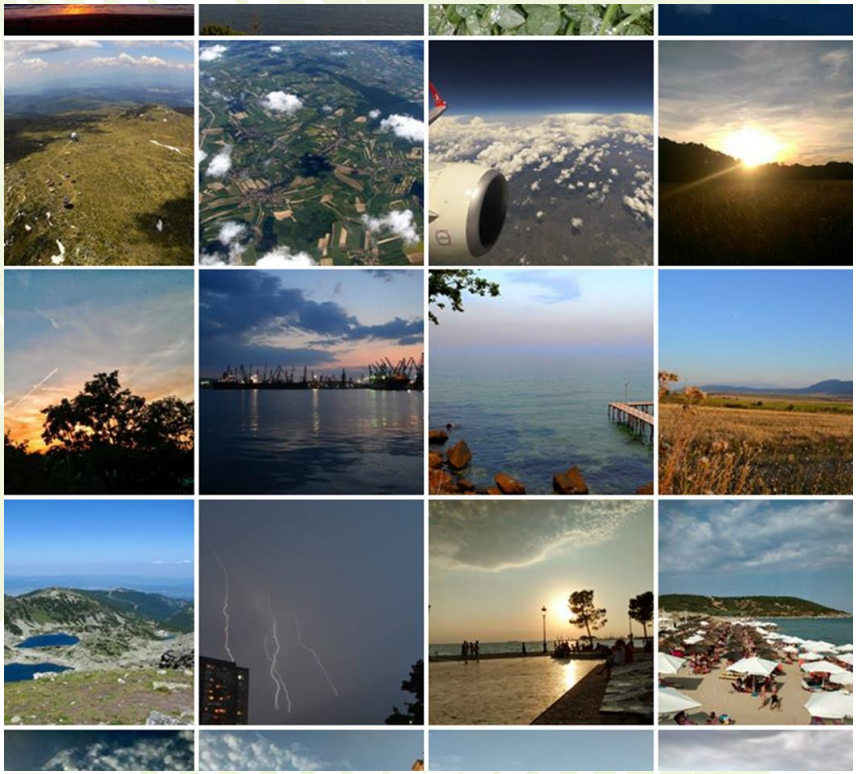
- Thank you for the attention!

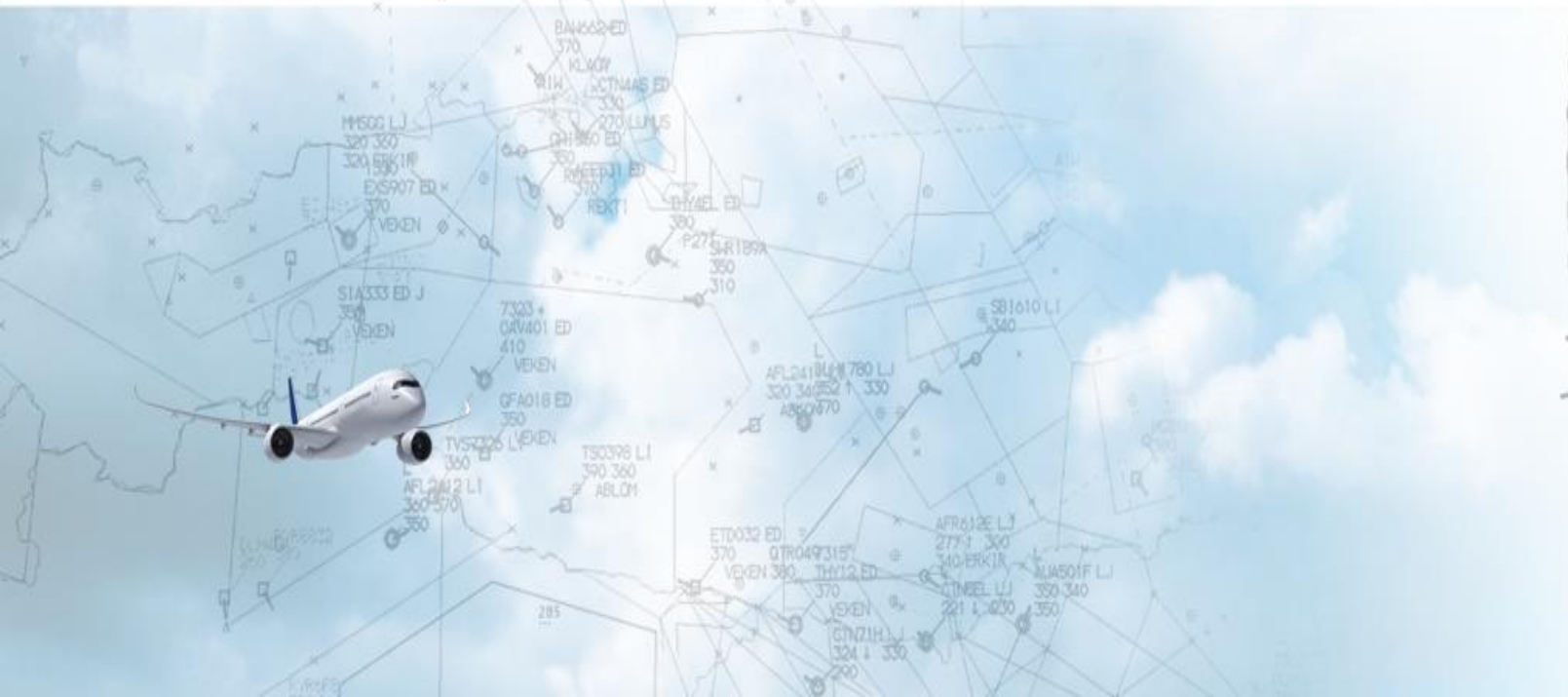


Questions?

The impact of weather on ATS operation

Philipp Wächter, Safety Manager, Austro Control

01.06.2023



Impacting weather phenomena

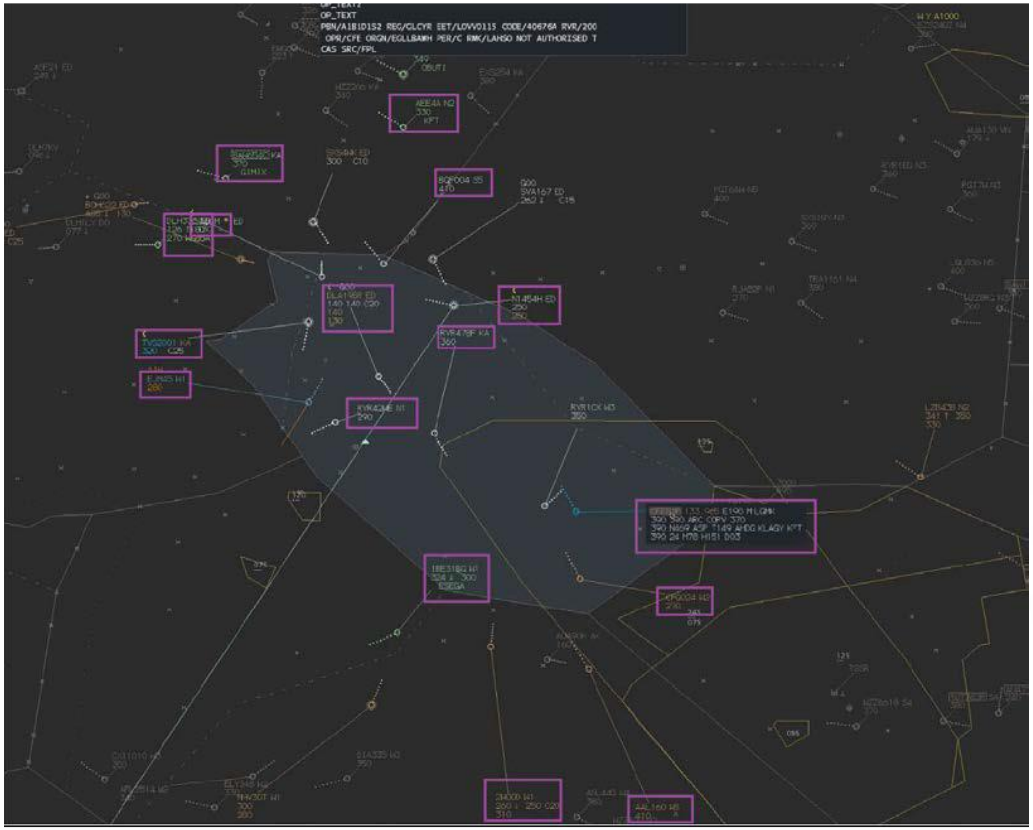
- **<u>En-route environment</u>**
  - CB/thunderstorms
  - Turbulence

- **<u>Aerodrome environment</u>**
  - rain showers
  - fog
  - snow

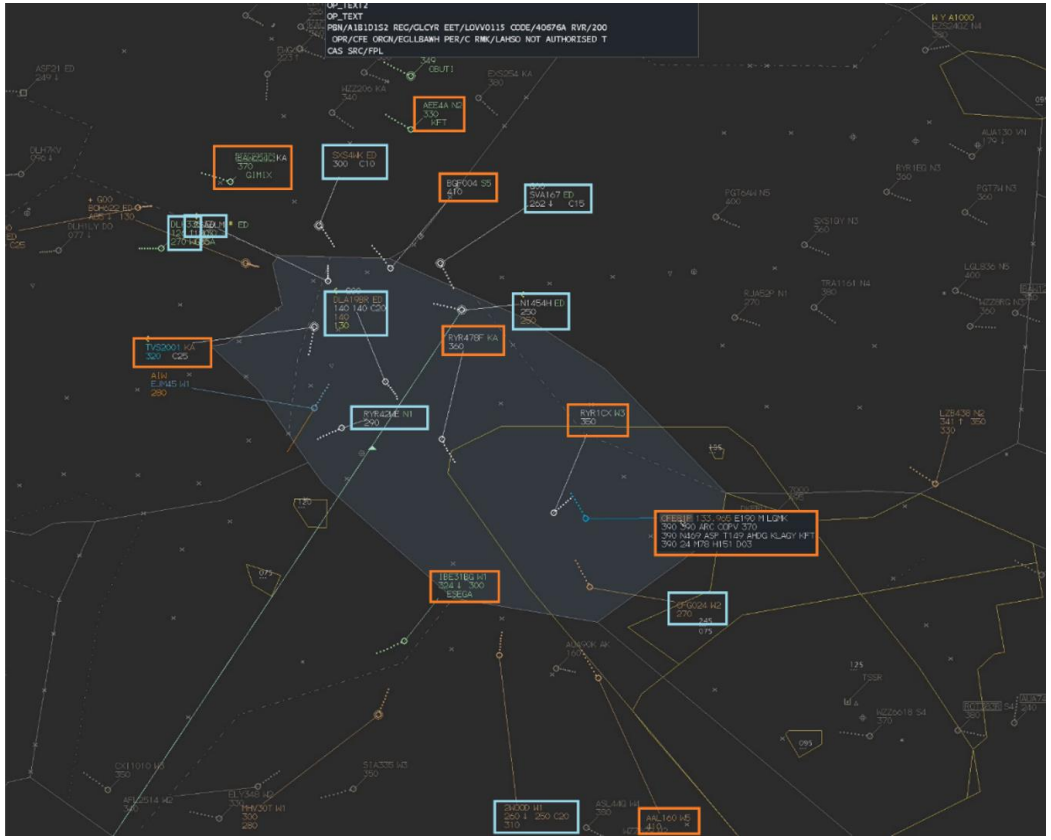
Effect of CB/ thunderstorms

- CBs within a sector limits usable airspace
- CBs in adjacent sector can lead to a high number of flights deviating into neighboring sector
- possible aircraft turns without announcement by pilot
- Restricted use of **M**id**T**erm**C**onflict**D**etection
- pilots unable to fly standard SIDs/STARs/Holdings/MAPPs
- unreliable occupancy counts due to intruder flights
- unreliable occupancy counts due to unpredictaple traffic flow because of deviations
- incresed frequency load due to deviation requests
- FPL –modifications
- no more FPL-adherence
- high coordination effort
- risk of overload situation/loss of situational awareness

Example: sector with intruder flights due to CB



same sector after vertical sector split



comparison of frequency load

Similar situation (same sector, same amount of traffic and vertical movements),
with (figure1) and without (figure2) deviating traffic

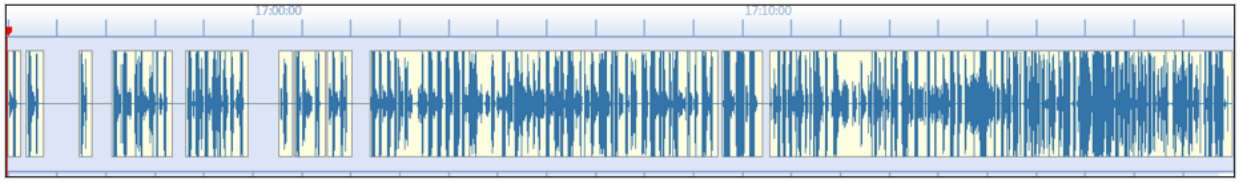


figure1

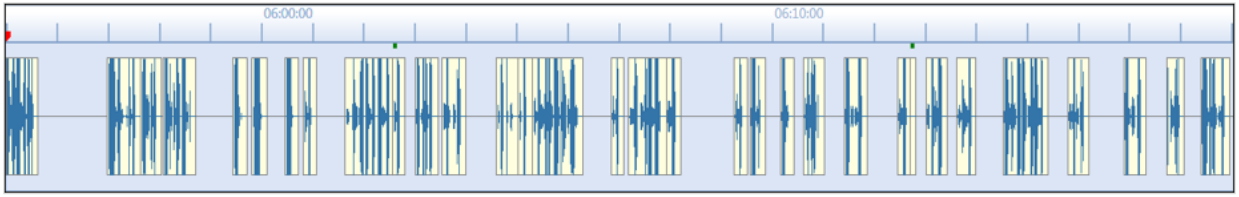


figure2

Effect of turbulence

- ATCOs have to expect level busts or FL-changes without announcement
- increased frequency load due to FL-change requests and turbulence reports by pilots
- unreliable occupancy counts due to unpredictable traffic flow due to FL-changes
- no more FPL-adherence
- FPL –modifications
- high coordination effort
- risk of overload situation/loss of situational awareness
- certain flight levels are avoided by pilots due to turbulence reports (PiReps) or weather forecast

Effect of fog/rain/snow

- increased spacing
- increased separation (no visual reduction possible)
- reduced capacity
- lov vis procedures (no conditional clearance, increased spacing on ground, …)
- increased coordination with airport, snowcleaning, deicing

Reaction of ATS in case of weather impact

Long-term:

- rostering additional stand-by staff (for possible unforeseen sector split)

Mid-term (2-3h in advance):

- capacity adaption
- sector regulation

Short-term:

- sector split (if staff is available)
- arrangement with adjacent sectors/units to simplify coordination and processes
- additional ATCO at the sector (if staff is available)
- CDM adaptations

Requested supporting measures

- in-time and accurate forecast of thunderstorm and turbulence, inclusive regularly updates
- joint MET forecast together with adjacent units & associated regulations coordinated between concerned units
- sufficient number of trained staff
- co-operating/similar ATC-systems in europe to provide automated data exchange with all adjacent units

Thank you!

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ACG Safety Manager

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Network Weather Procedures

Supporting European Aviation

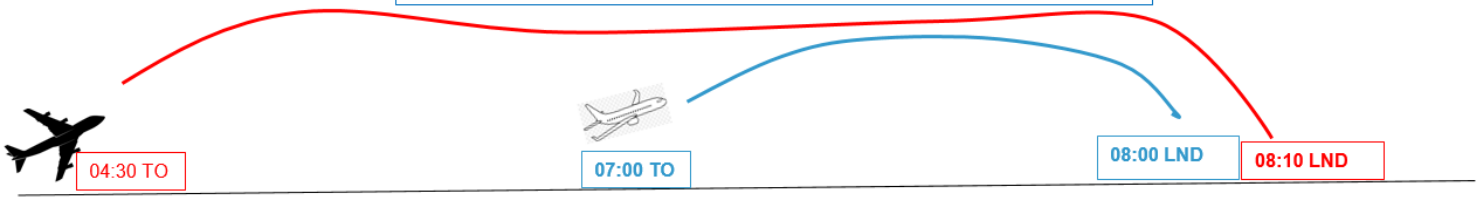
EUROCONTROL

FOUNDING MEMBER OF sesar JOINT UNDERTAKING

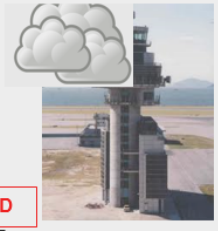
NETWORK MANAGER

EUROCONTROL

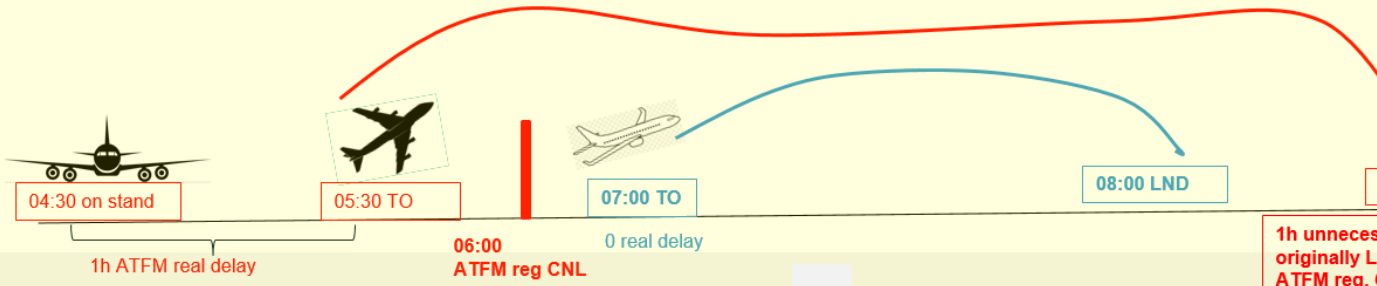
The original plan: what AOs would like to do



@03:30 LowVis and regulation is applied. Plan changes: CTOT=EOBT+1h for both flights



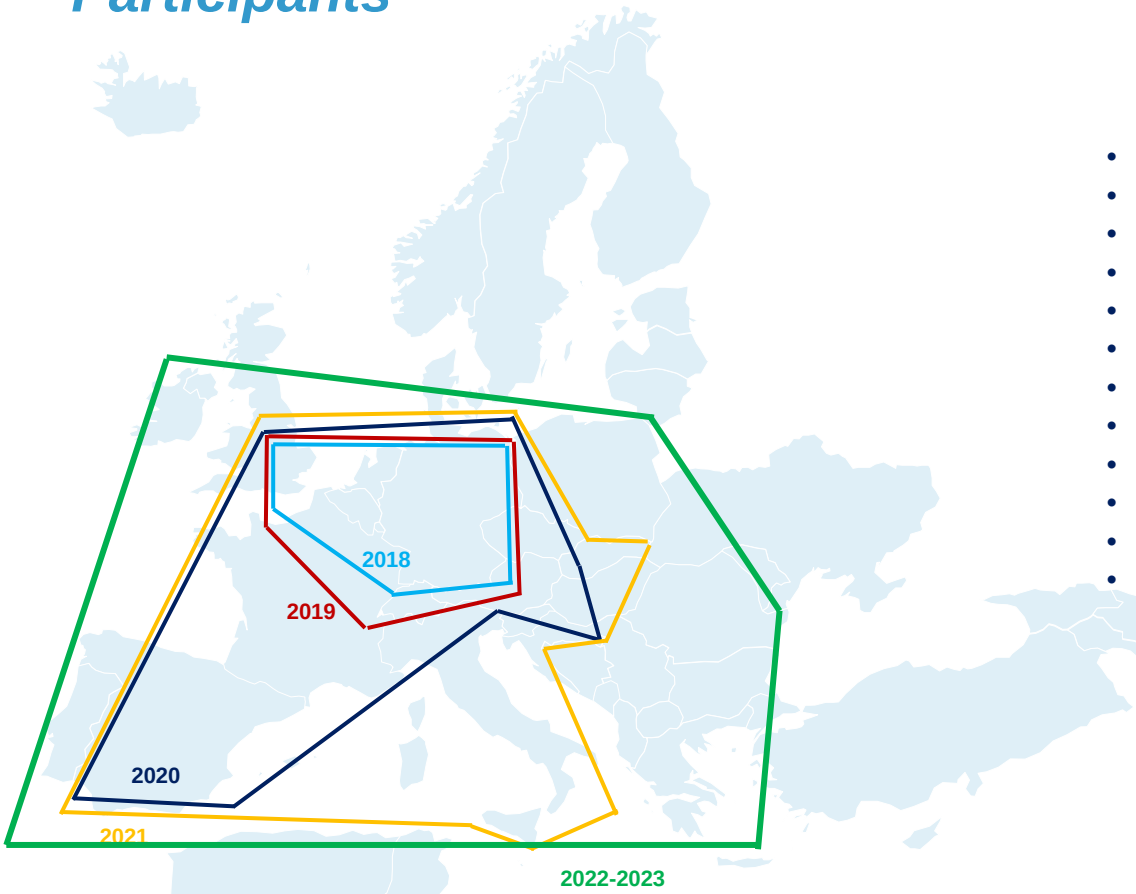
@06:00: Wx improves and the regulation is cancelled. What happens in reality:



Implementation status and next steps

- Collaborative effort between the NM / NMOC, NM/Airports and ANSP/FMPs stakeholder. Well supported by the airlines community.
- In 2022/2023 there are 7 airport locations from 6 ANSPs/FMPs that joined the procedure for short WX with exempted [EM] flows:
  - EBBR (skeyes);
  - EDDF (DFS Langen);
  - LSGG and LSZH (Skyguide);
  - ENGM (Oslo FMP, Avinor);
  - LEPA (Enaire, LECP FMP);
  - EHAM (LVNL).
- Next steps: inclusion of the [EM] flow procedure for short WX to the ATFCM OPS Manual. IN with new applicants published on NOP (instead of issuing.
- Aircraft operators to encourage ANSPs to apply the procedure. Requests to **shortwx@eurocontrol.int**

Participants



2023

- Albcontrol
- ANS CR
- Austrocontrol
- Bhansa
- BULATSA
- CroControl
- DFS
- DSNA
- ENAIRE
- ENAV
- HungaroControl
- IAA
- LPS SR
- LVNL
- M-NAV
- MUAC
- NATS
- NAV Portugal
- PANSA
- ROMATSA
- Skyguide
- Slovenia Control
- Smatsa

Meteorological service coordination led by **EUMETNET**

Aircraft Operators – **KLM, easyJet, Air France and Lufthansa**

Airports – **London Heathrow, Barcelona, Zurich, Amsterdam Schiphol**

EUROCONTROL

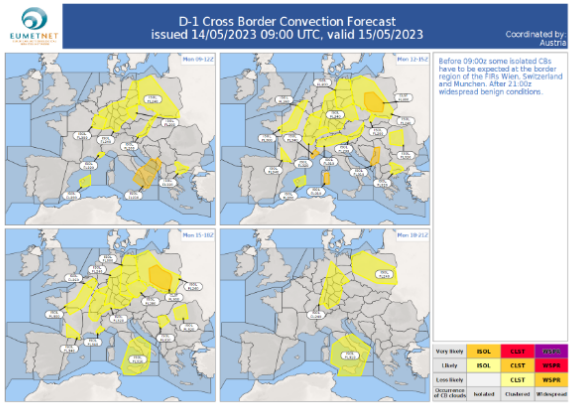
Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Cross Border Convection Forecast View

logout

Validity date: Monday, May 15, 2023

D1



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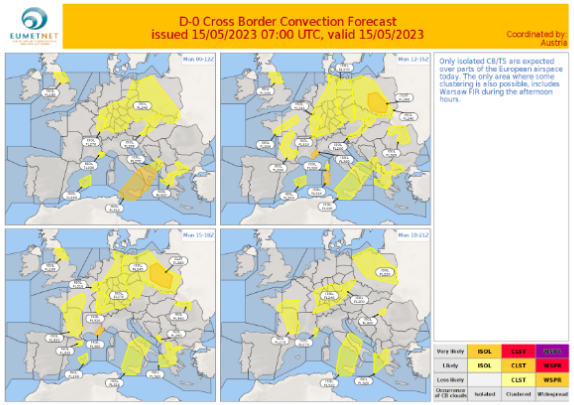
last updated: Sun, 14 May 2023 09:00:11 GMT

D0



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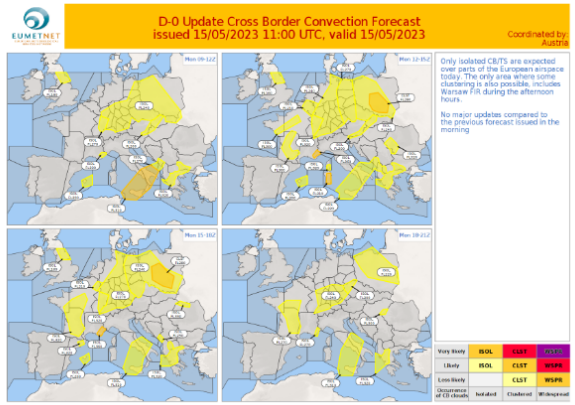
last updated: Mon, 15 May 2023 07:00:27 GMT

D0U



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last updated: Mon, 15 May 2023 11:02:42 GMT

The Cross Border Convection Forecast is provided by the participating meteorological services

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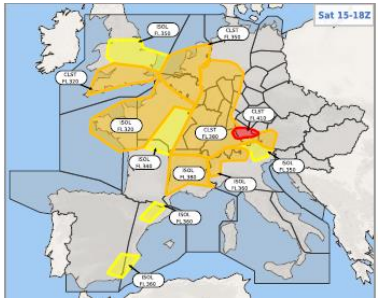
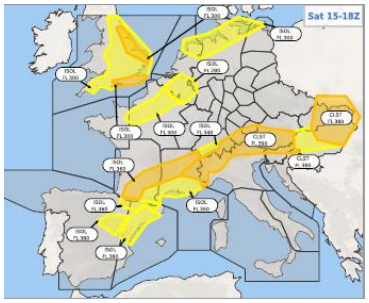
Triggers for Collaboration



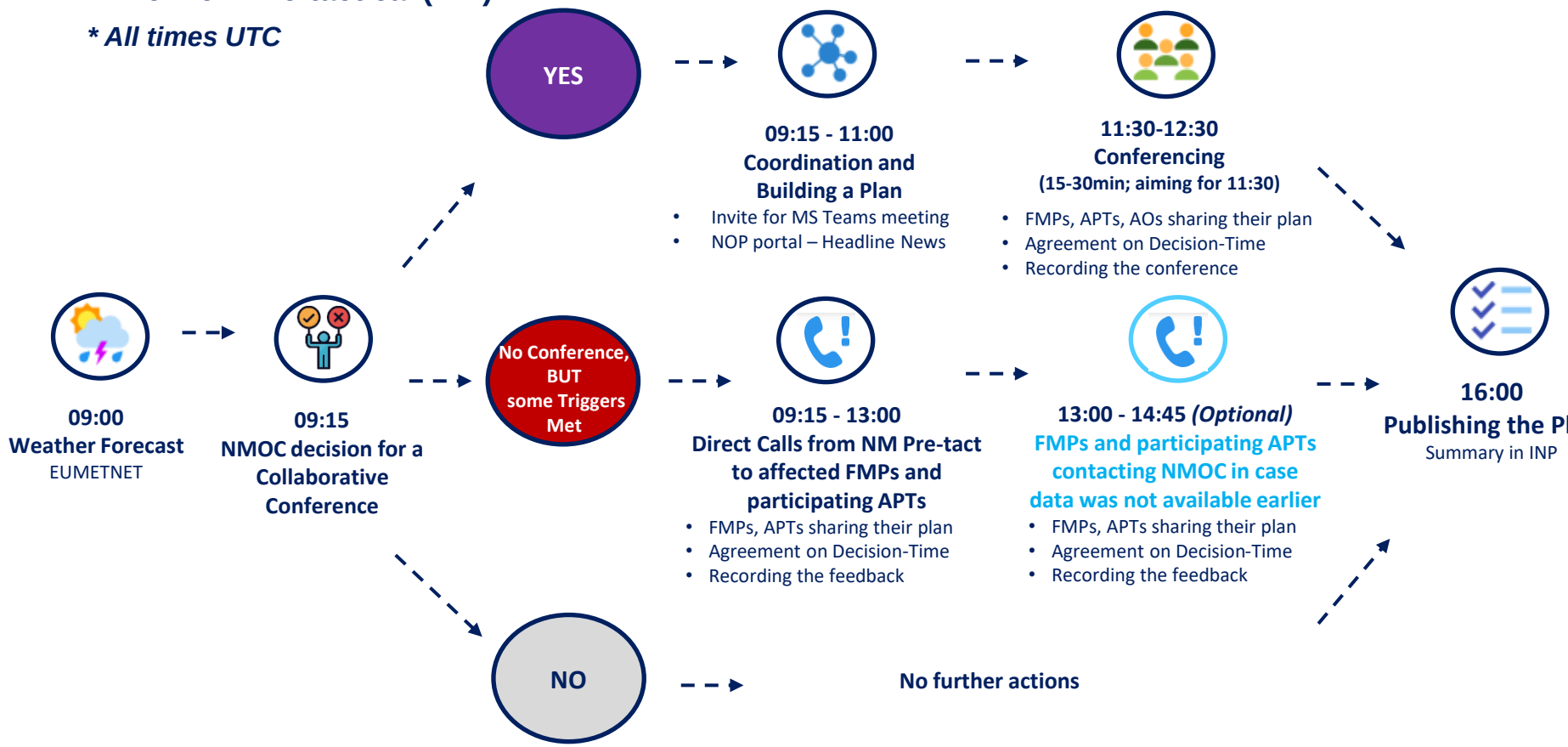


- Traffic levels – above 20,000
- Day of the week – higher likelihood Friday – Monday
- Special events – e.g. Industrial action
- Colour based
  - **Red** and **purple** – a conference normally should be called
  - **Wide orange** covering central Europe / traffic flow axis → either individual calls to FMPs or a conference
  - Other → individual calls if required

Summer 2023

Timeline – Pre-tactical (D-1)

** All times UTC*



Summer 2023

Timeline – Tactical (D-0)

07:00
Weather Forecast Update
EUMETNET

WIP
Live Weather Observation
EUMETNET

Follow Up Calls

- Update on information provided at D-1
- Differences from local forecast
- Need for a weather regulations

Relevant Tactical Information
→ NOP portal Headline News

Calls through the day based on the situation

**** All times UTC***

Summer 2023

Start – **1st May** (Mon)

End – **16th Oct** (Mon)

MET Forecaster in the NMOC

"Live" Feedback

NMOC Weather Dashboard

EUROCONTROL

NETWORK CROSS-BORDER WEATHER DASHBOARD

2023

Select all
Yesteday
Today
Tomorrow

D-1 CONFERENCE

Select all
No D-1 conference

FMP/APT

Search
Select all
(Blank)

FMP

Covered day	FMP	Agreed D-0 Time	D-1 Conf.	Staffing Levels	Exp. Cap. reduction vs standard	Exp. and max. no. sectors	Affected sectors	Rerouting options	Note
Wednesday, May 03, 2023			No D-1 conference						

AIRPORT

Covered day	APT	Agreed D-0 Time	D-1 Conf.	Capacity reductions	Diversion Capability	Other Constraints	Work in progress	Note

Beyond Summer 2023