





MetSafe: Who we are





MetSafe: Access to MET data service



Access to Live Data

Catalogue of global MET products accessible through SWIM Yellow Profile API





Access to historical meteorological data for AI applications

HistoMet in a nutshell



Up to 10 years of Aeronautical weather data Access to tailored aeronautical weather datasets Easy Access through API Avoid downloading raw datasets, just access the data you need Long term view Includes access to climat forecast and reanalysis data for studies with long series needs Use Cases based Service built to feed dashboard, postops analysis or Al applications

What is MET ? Global Catalogue sample





Thunderstorms detection by satellite (MétéoFrance <u>RDT</u>) Ground based Lightning detection (Météorage) Airport observation



What is MET ? Global Catalogue sample







- Extraction around 4D trajectories
- ➢ Multimodel from global 25km to local 1.3km □
- Best data mode



What is ENV ? Global Catalogue sample





Contrails forecast



Wind sand forecast (Copernicus CAMS)

HistoMet: High Level Design





HistoMet: Use Cases







HistoMet: Use Case





- **o** General answer: Forecast compared with observation
- Forecast: SIGMETs, EUMETNET forecast, VigiAero
- HistoMet: Extraction of series of observation
- > Analytics: automation of post ops analysis





Post OPS Meteorological Analytics

HistoMet: Use Case





« Airport design (new location): What is the best orientation for runways ? »

- User Requirement: Maximisizing headwind, minimising tailwind and crosswind
- **o** Decision on specialised runway versus banalised runway
- On site observation on new location: not long enough (ex.: el nino)
- HistoMet: Extraction of long series of historical forecasted wind data + adjacent airports observation







□○ Meteorological warning filtering + Analytics







Collect new use cases (MET VS Aviation Vs Other domain)

Validation Histomet 1 month > 1 year > 10 years

June 2021: first API delivered



Conclusion



- > Al requires proper dataset
- Meteorology is very heterogeneous in terms of data, semantic, format, sources, capabilities

> HistoMet

- Simple, Fast and cost effective meteorological back office of aviation-related AI application
- User can concentrate on its core business



Thank you for your attention











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MetSafe: Services Portfolio





HistoMet: Live versus Historical service



	LIVE	HISTORICAL
Response Time	<1s	<1min
Availability	99,99%	99,5%
Products	Catalogue based	Catalogue
Services	WFS, tailored webservices	WFS
Depth	Minimum 30 days	Up to 10 years
Architecture	Cloud based 3 regions	Cloud based 2 regions







HistoMet: Data format input and API output



Data type	Input	API Output
Observation data (airport/metar/stations met) .	Numerical value mostly text format or BUFR	
		JSON/GEOSJON/GML
Numerical weather models (Gridded data with x dimensions).	Scientific format: NetCDF, GRIB	Under Study PROTOBUF AVRO AI Ready Format
Weather Hazards (Satellite, radar, derived form weather models)	Vector objects with various formats, XML, raw text in proprietary format	



Access to data: Real-time global products





Data Providers: MeteoFrance/Meteorage, NOAA, Copernicus, DWD (regional model), FMI (regional model)...

Access to data: candidate for extension





Data Catalogue extended upon customers request



MetSafe: Weather Profile







Extraction of meteorological information around a 4D trajectory Best model Mode Support to SWIM purple profile



Early adopters: Safety Line





Industry serving Airlines

Fuel Optimisation through Big Data https://www.safety-line.fr/en/

Climb Profile Optimization

The target is to reach the same point in ground distance at the same time with a more efficient trajectory.



Consumed services: Weather Profile (Wind/temp over 4D trajectory)



Thank you for your attention











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