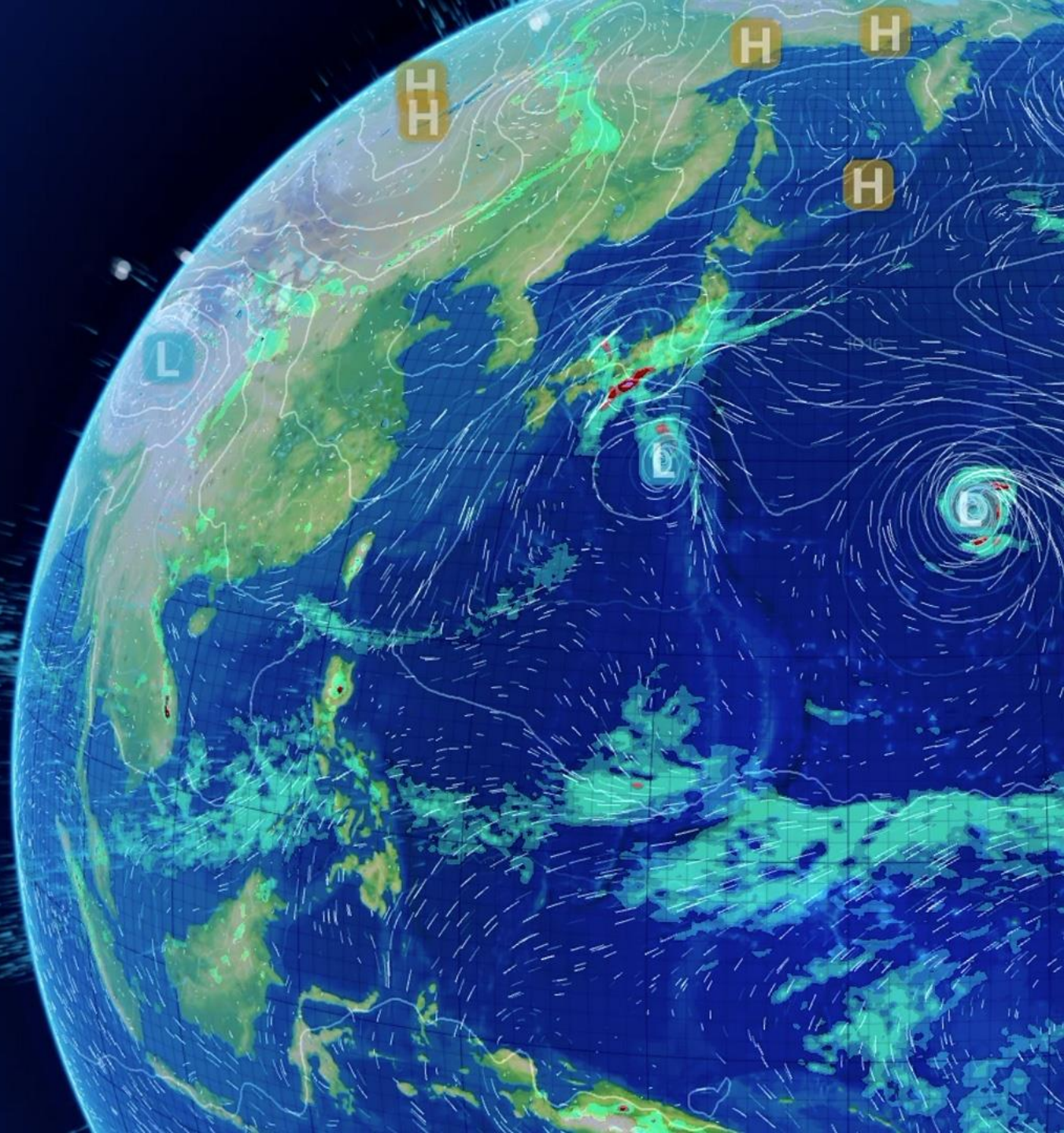
SADIS API

Karen Shorey
SADIS and WAFS Manager



Met Office

SADIS

- SADIS has been operated by the Met Office System in various versions since 1994.
- Originally it used a satellite, then switched to use the internet (ftp).

- SADIS FTP is not able to handle the huge increase in data volume that comes with the new WAFS gridded data sets
- SADIS FTP also isn’t (and can’t be made to be) SWIM compliant in line with ICAO recommendations.

- SADIS API is the newest generation of SADIS. It is twinned with the WIFS API (operated by WAFC Washington).

Met Office

SADIS API

- Became operational in March 2024 for the WAFS Gridded and OPMET data
- Became operational on 8 April 2025 for WAFS SIGWX

- Confirms to the Open Geospatial Consortium Environmental Retrieval API standards https://ogcapi.ogc.org/edr/
- SADIS API API conforms to EUROCONTROL SWIM yellow profile
- Is published in the EUROCONTROL SWIM registry https://eur-registry.swim.aero/services

- The WIFS API functions in exactly the same way and is the backup system

Filter by

Service Provider Name

Met Office

Service Type

- Any -

Lifecycle Stage

- Any -

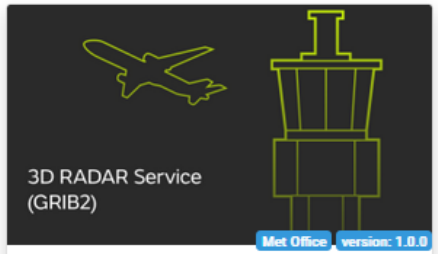
Version

Sort by

Title Asc

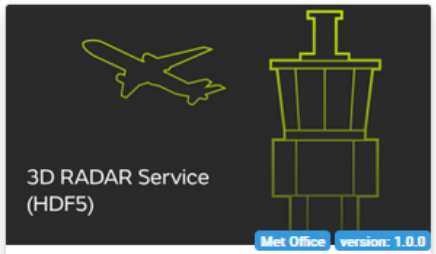
Apply

Service Descriptions



3D RADAR Service ...

The Pan-European 3D RADAR Service aims to provide a SWIM Compliant access point to high resolution R...



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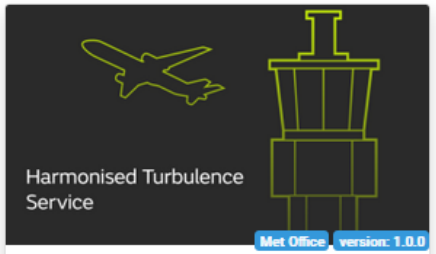
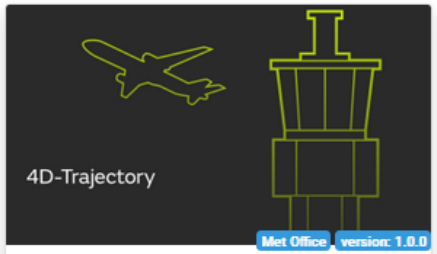


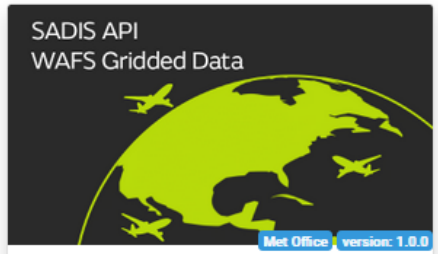
Harmonised Turbul...

The Harmonised Turbulence Service aims to provide a SWIM Compliant access point to harmonised turbul...



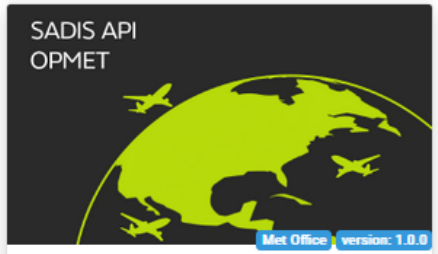
Met Office 4D-Tra...

The Met Office 4D Trajectory API service supplies global meteorological data for tailored flight tra...



SADIS WAFS Gridde...

The SADIS World Area Forecast Service (WAFS) Gridded Data service (the Service) supplies tiles of me...



SADIS WAFS OpMet ...

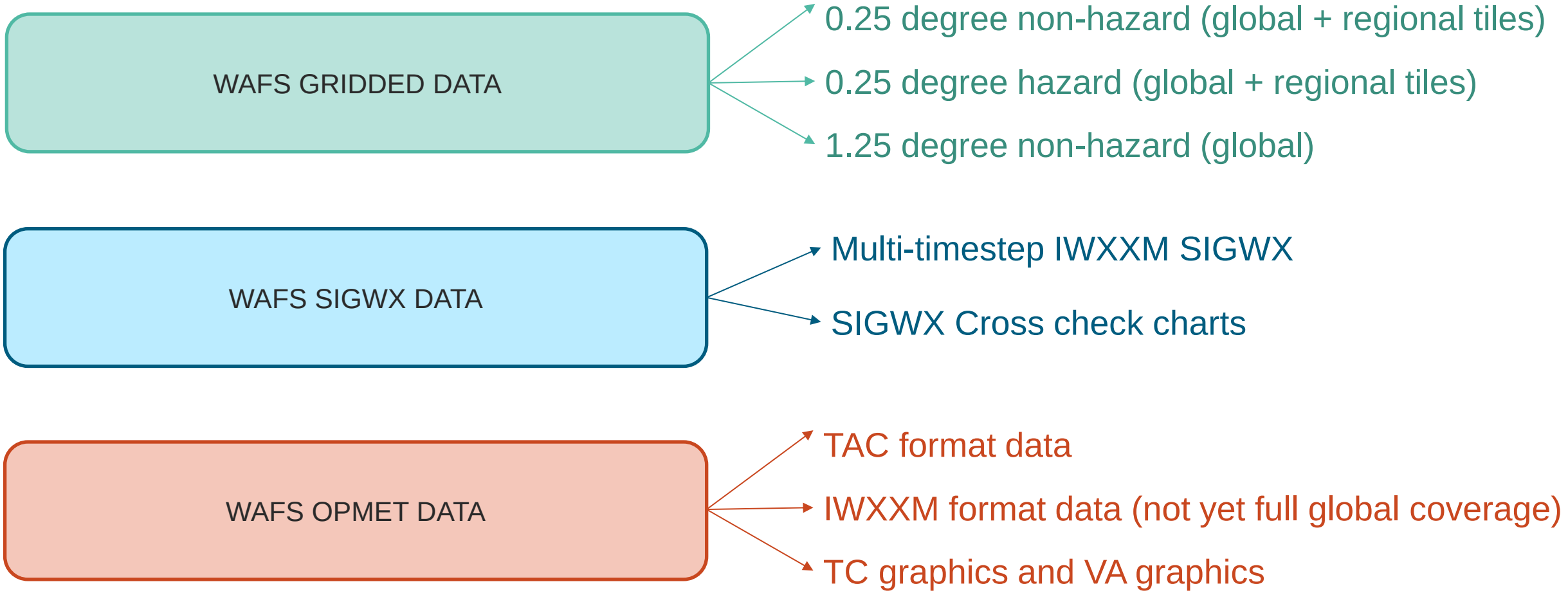
The SADIS World Area Forecast Service (WAFS) OpMet API Data service supplies packaged bulletins of m...

SADIS WAFS SigWx ...

The SADIS World Area Forecast Service (WAFS) SigWx API data service supplies packaged bulletins of S...

Met Office

SADIS API ELEMENTS



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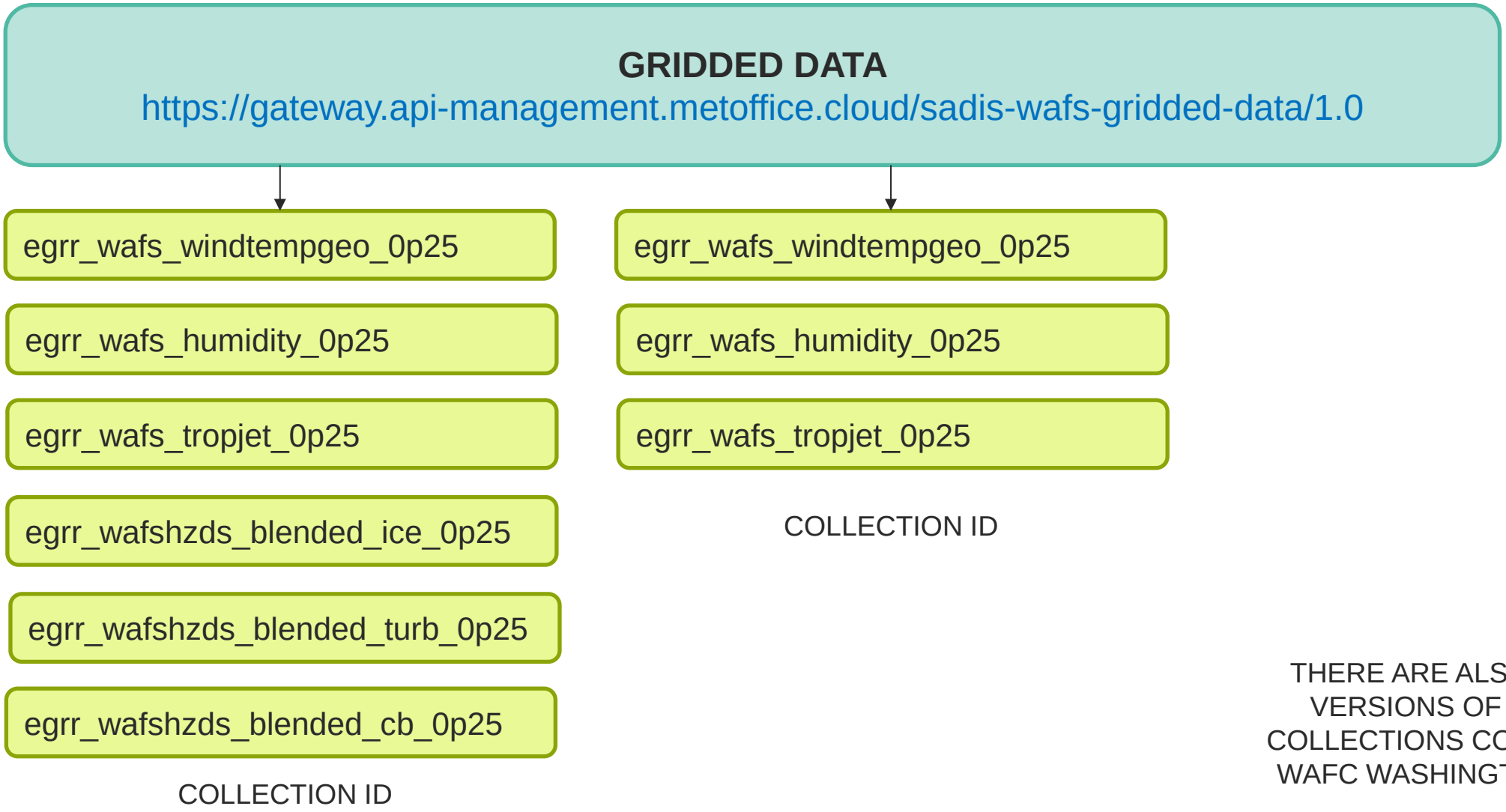
SADIS API – WAFS GRIDDED DATA

Met Office

WAFS GRIDDED COLLECTIONS



THERE ARE ALSO KWBC VERSIONS OF THESE COLLECTIONS CONTAINING WAFC WASHINGTON DATA

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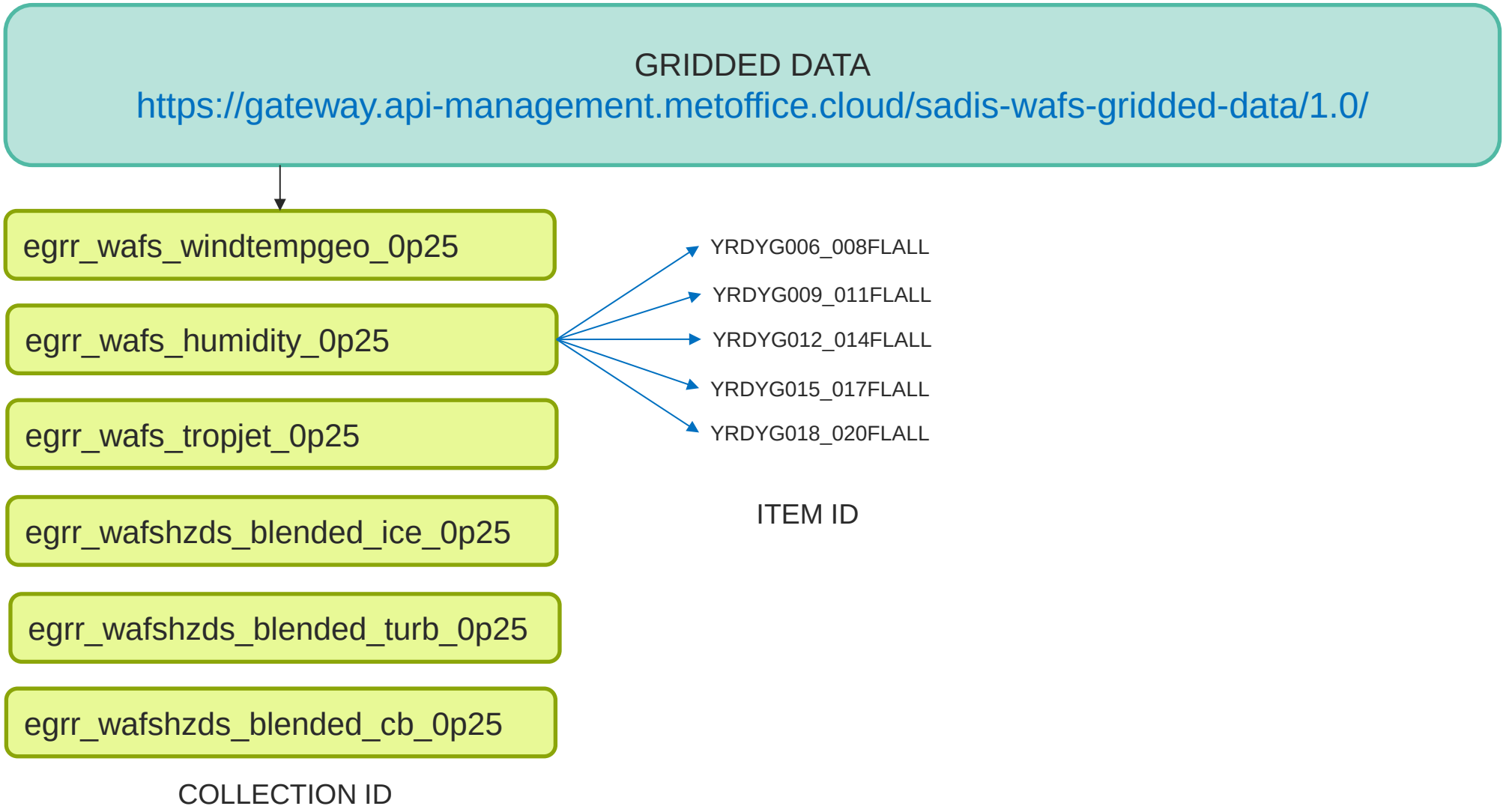
WAFS GRIDDED COLLECTIONS



Met Office

EACH ITEM HAS A CODE

YRDYG006_008FLALL

YUVDYG012_014FLALL

YTDYA100615_017FLALL

YHDXG012_018FL999

YUVDYA4033_030FLALL

YIDYG042_048LALL

YBDYA7045_048FL001

$T_1T_2T_3A_1A_2$ $B_1B_2B_3\_B_1B_2B_3$ FLnnn	Description	Options
T_1	Always start with Y (Y stands for GRIB)	**Y**
T_2	Designates parameter as	**UV** = u and v winds **T** = temperature **R** = relative humidity **H** = geopotential height, and height of tropopause **I** = icing severity **L** = turbulence severity **B** = cumulonimbus
T_3	To designate whether output is probabilistic or deterministic	**D** = deterministic **P** = probabilistic (for future WAFS data sets)
A_1	Resolution	**X** = 1.25 **Y** = 0.25
A_2	Spatial Coverage	**G** = Global **A1, A2, A3, A4, A5, A6, A7, A8** = Tile region number.

Met Office

EACH ITEM HAS A CODE

YRDYG006_008FLALL

YUVDYG012_014FLALL

YTDYA100615_017FLALL

YHDXG012_018FL999

YUVDYA4033_030FLALL

YIDYG042_048LALL

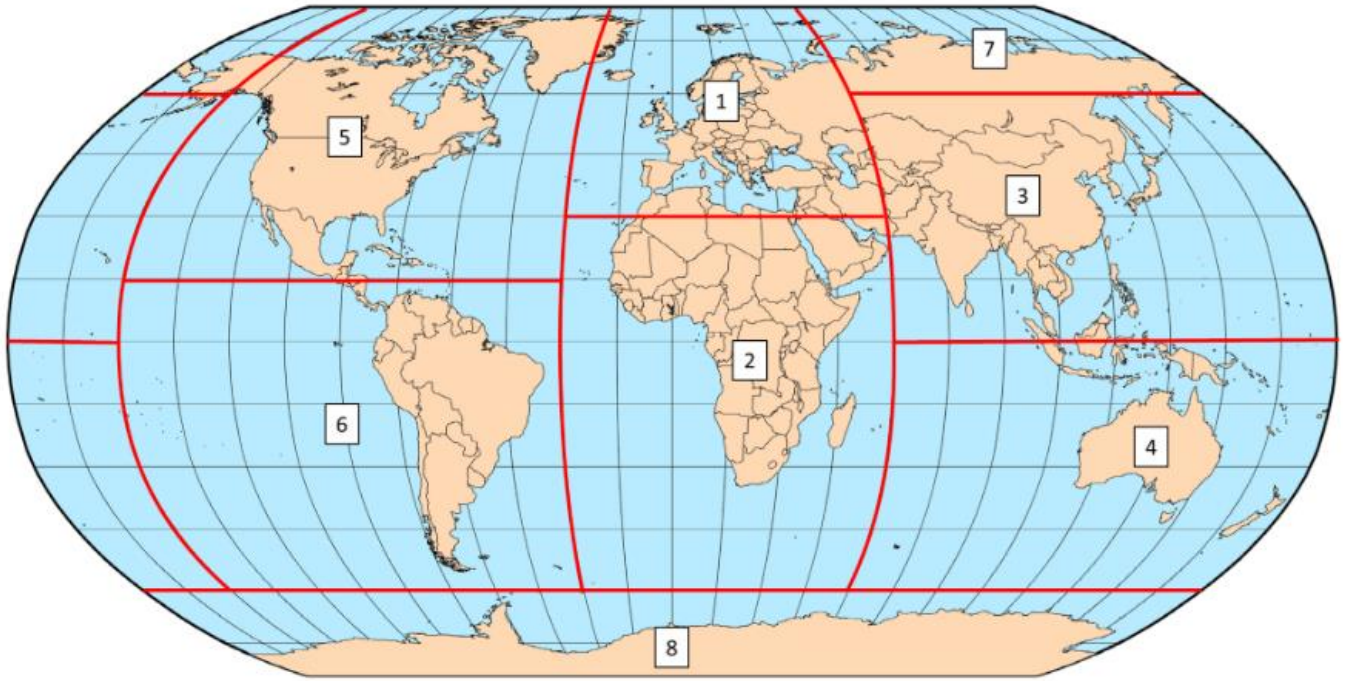
YBDYA7045_048FL001

$T_1T_2T_3A_1A_2$ $B_1B_2B_3$_$B_1B_2B_3$ FLnnn	Description	Options
$B_1B_2B_3$	Starting forecast timestep in hours	e.g. “024” or “054”
_	To separate Starting and Ending forecast timesteps	Underscore character
$B_1B_2B_3$	Ending forecast timestep in hours	e.g. “030” or “066” See table 8 for permissible options
FL	To denote which flight levels will be returned	**FLALL** = all available flight levels **FL999** for trop field only, **FL998** for max wind field **FL001** for CB extent, **FL002** for CB base **FL003** for CB top

Met Office

AVAILABLE REGIONAL TILES

All data available as a global “tile”. 0.25 degree data also available for 8 regional tiles.



Pre-set map areas	
Region 1	30W-60E, 30N-90N
Region 2	30W-60E, 60S-30N
Region 3	60E-150W, 0-60N
Region 4	150W-30W, 60S-0
Region 5	150W-30W, 15N-90N
Region 6	150W-30W, 60S-15N
Region 7	60E-150W, 60N-90N
Region 8	180W-180E, 90S-60S

You always get all the available model levels.

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AND IS GROUPED INTO THREE TIMESTEP PACKAGES

Timestep groupings at 0.25° resolution		Timestep groupings at 1.25° resolution	
	$B_1B_2B_3\_B_1B_2B_3$ in the item name		$B_1B_2B_3\_B_1B_2B_3$ in the item name
T+006, T+007, T+008	**006_008**	T+006, T+009, T+012	**006_012**
T+009, T+010, T+011	**009_011**	T+015, T+018, T+021	**015_021**
T+012, T+013, T+014	**012_014**	T+024, T+027, T+030	**024_030**
T+015, T+016, T+017	**015_017**	T+033, T+036	**033_036**
T+018, T+019, T+020	**018_020**		
T+021, T+022, T+023	**021_023**		
T+024, T+027, T+030	**024_030**		
T+033, T+036, T+039	**033_039**		
T+042, T+045, T+048[1]	**042_048**		
T+054, T+060, T+066[2]	**054_066**		
T+072, T+078, T+084	**072_084**		
T+090, T+096, T+102	**090_102**		
T+108, T+114, T+120	**108_120**		

Note:

[1] *Cumulonimbus, icing and turbulence parameters only go up to timestep T+048.*

[2] *For the 06Z and 18Z model updates, EGRR datasets only go up to timestep T+066.*

Met Office

HOW DO YOU GET THE DATA

1) You need to have an authentication token

- Secure keys are obtained via our API developer portal
- Only you will know your secure keys
- You use the secure keys to create the token.

Met Office

HOW DO YOU GET THE DATA

1) You need to have an authentication token

```
curl -k -X POST https://api-km.api-management.metoffice.cloud/oauth2/token
   -d "grant_type=client_credentials"
```

- `-H "Authorization: Basic Base64(consumerkey:consumer-secret)"`

Met Office

HOW DO YOU GET THE DATA?

2) You make a series of specific https requests for the data using this form:

```
https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/collections/{collectionId}/items/{ItemId}
```

For example:

```
https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/collections/egrr_wafs_windtempgeo_0p25/items/YUVDYG006_008FLALL
```

Met Office

HOW DO YOU GET THE DATA?

2) You make a series of specific https requests for the data using this form:

https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/collections/egrr_wafs_windtempgeo_0p25/items/YUVDYG006_008FLALL

https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/collections/egrr_wafs_windtempgeo_0p25/items/YUVDYG009_011FLALL

https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/collections/egrr_wafs_windtempgeo_0p25/items/YUVDYG012_014FLALL

https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/collections/egrr_wafs_windtempgeo_0p25/items/YUVDYG015_017FLALL

Met Office

HOW MANY REQUESTS?

	T+0, T+12 model run	T+6, T+18 model run
WAFC London (EGRR) 0.25-degree non-hazard data	104	80
WAFC London (EGRR) 0.25-degree hazard data	45	45
WAFC London (EGRR) 1.25-degree non-hazard data	32	32
WAFC Washington (KWBC) 0.25-degree non-hazard data	104	104
WAFC Washington (KWBC) 0.25-degree hazard data	45	45
WAFC Washington (KWBC) 1.25-degree non-hazard data	32	32

Met Office

HOW DO YOU KNOW IF ITS NEW DATA?

The API contains metadata…

- https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/

  is the API landing page
- https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/api

  gives general information on the API specification
- https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/conformance

  gives information on the specification that the API confirms to.

Met Office

HOW DO YOU KNOW IF ITS NEW DATA?

- Only the latest model run of data is published
- Data is published at between 4:30 and 5:00 after the model run time
- 4 model runs per day

Met Office

HOW DO YOU KNOW IF ITS NEW DATA?

Wait until the normal publish time, then check the item metadata

https://gateway.api-management.metoffice.cloud/sadis-wafs-gridded-data/1.0/collections/egrr_wafs_windtempgeo_0p25/items

This contains information on the start and end time of the data set. Once this changes it means new data has been published.

```
"temporal": {
      "interval": [
            "2025-01-12T12:00:00Z",
            "2025-01-15T00:00:00Z"
]
```

Met Office

REQUEST RESPONSES

If the request is successful you get a small response file containing a url that can be followed to get the GRIB2 data file (a redirect).

If the request is unsuccessful, you will get an error code.

BE AWARE:

You might need to change the settings on your firewall to permit the redirect URL's.

Met Office

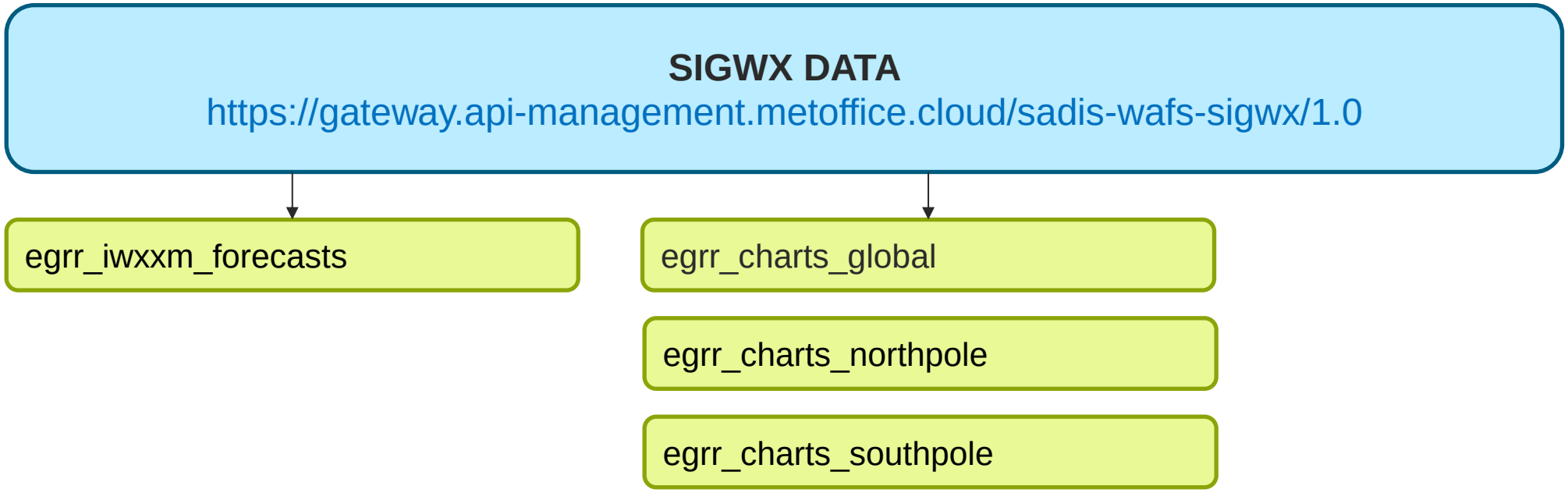
DOWNLOADING STRATEGIES IF LIMITED BANDWIDTH

- Take global 1.25-degree data (where available) and then your chosen 0.25-degree regional tile
- Spread out your data requests over a longer period of time
- Take earliest timesteps first, or most important parameters to you first, and get other data later
- Download once within your organisation the distribute data to multiple internal systems.

Met Office

SADIS API – WAFS SIGWX DATA

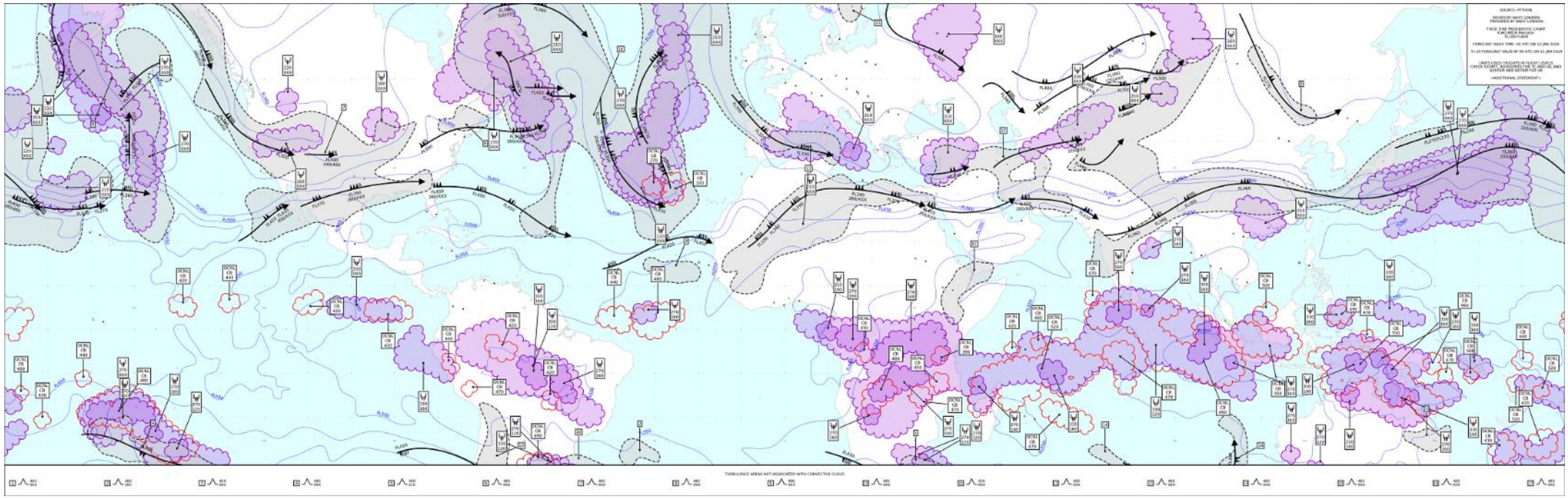
WAFS SIGWX COLLECTIONS



COLLECTION ID

THERE ARE ALSO KKCI VERSIONS OF THESE CONTAINING WAFC WASHINGTON DATA

Met Office



Met Office

HOW DO YOU GET THE DATA

1) You need to have an authentication token

```
curl -k -X POST https://api-km.api-management.metoffice.cloud/oauth2/token
   -d "grant_type=client_credentials"
```

- `-H "Authorization: Basic Base64(consumerkey:consumer-secret)"`

Met Office

HOW DO YOU GET THE DATA?

2) You make a https request like this:

```
https://gateway.api-management.metoffice.cloud/sadis-wafs-sigwx/1.0/collections/ egrr_iwxxm_forecasts /locations/GLOBAL
```

or

```
https://gateway.api-management.metoffice.cloud/sadis-wafs-sigwx/1.0/collections/ egrr_charts_global /locations/GLOBAL
```

Met Office

HOW DO YOU KNOW IF ITS NEW DATA?

- Only the latest model run of data is published
- Data is normally published at 5:55 after the model run time (or 6:55 if it’s a backup)
- 4 model runs per day

- Temporal information in the collection metadata can be checked to see if the data has updated.

Met Office

REQUEST RESPONSES

If the request is successful you get either:

- An IWXXM (xml) file
- A small response file containing a url that can be followed to get the charts in a zip file (a redirect).

If the request is unsuccessful, you will get an error code.

BE AWARE:

You might need to change the settings on your firewall to permit the redirect URL’s.

Met Office

SIGWX BACKUPS

If WAFC London has problems creating the EGRR SIGWX charts/IWXXM versions of the data created by WAFC Washington will be published automatically in their place

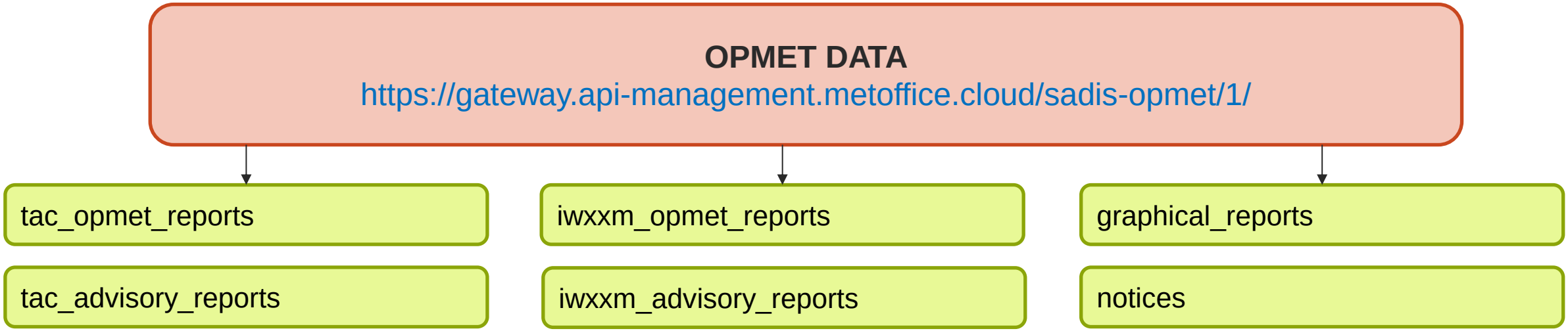
If WAFC London doesn’t get the KKCI SIGWX charts/IWXXM from WAFC Washington, versions of the data created by WAFC London will be published automatically in their place.

Met Office

SADIS API – OPMET DATA

Met Office

OPMET COLLECTIONS



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WHAT IS IN EACH COLLECTION:

Collection Name	Collection contains:	Update frequency
tac_opmet_reports	METAR, TAF, SPECI, SIGMET (all types), AIRMET, GAMET and special AIREPs in the traditional alphanumeric code format.	5 minutes
iwxxm_opmet_reports	METAR, TAF, SPECI, SIGMET (all types) and AIRMET, in IWXXM format.	5 minutes
tac_advisory_reports	Tropical cyclone advisories, volcanic ash advisories, space weather advisories, nuclear emergency messages, and NOTAM/ASHTAM relating to volcanic eruptions in the traditional alphanumeric code format.	5 minutes
iwxxm_advisory_reports	Tropical cyclone advisories, volcanic ash advisories and space weather advisories in IWXXM format.	5 minutes
graphical_reports	This collection volcanic ash graphics and tropical cyclone graphics in .png format.	5 minutes
notices	Various notification messages issued by the European Regional OPMET Centres (ROC London, ROC Toulouse, ROC Vienna and ROC Moscow) and the Regional OPMET Data Bank in Brussels.	20 minutes

Met Office

REGIONAL SUBSETS:

OPMET reports (METAR, TAF, SIGMET etc) are available in regional subsets.

Advisory reports and notices are not.

locationId	ICAO "CCCC"
EUR-NAT	**E*** **L*** **B*** **U***
NAM-CAR	**C*** **K*** **M*** **T*** **P***
SAM	**S***
AFI	**G*** **D*** **F*** **H***

locationId	ICAO "CCCC"
AFI	**G*** **D*** **F*** **H***
MID	**O***
ASIA-PAC	**A*** **N*** **R*** **V*** **W*** **Y*** **Z***
GLOBAL	all ICAO codes

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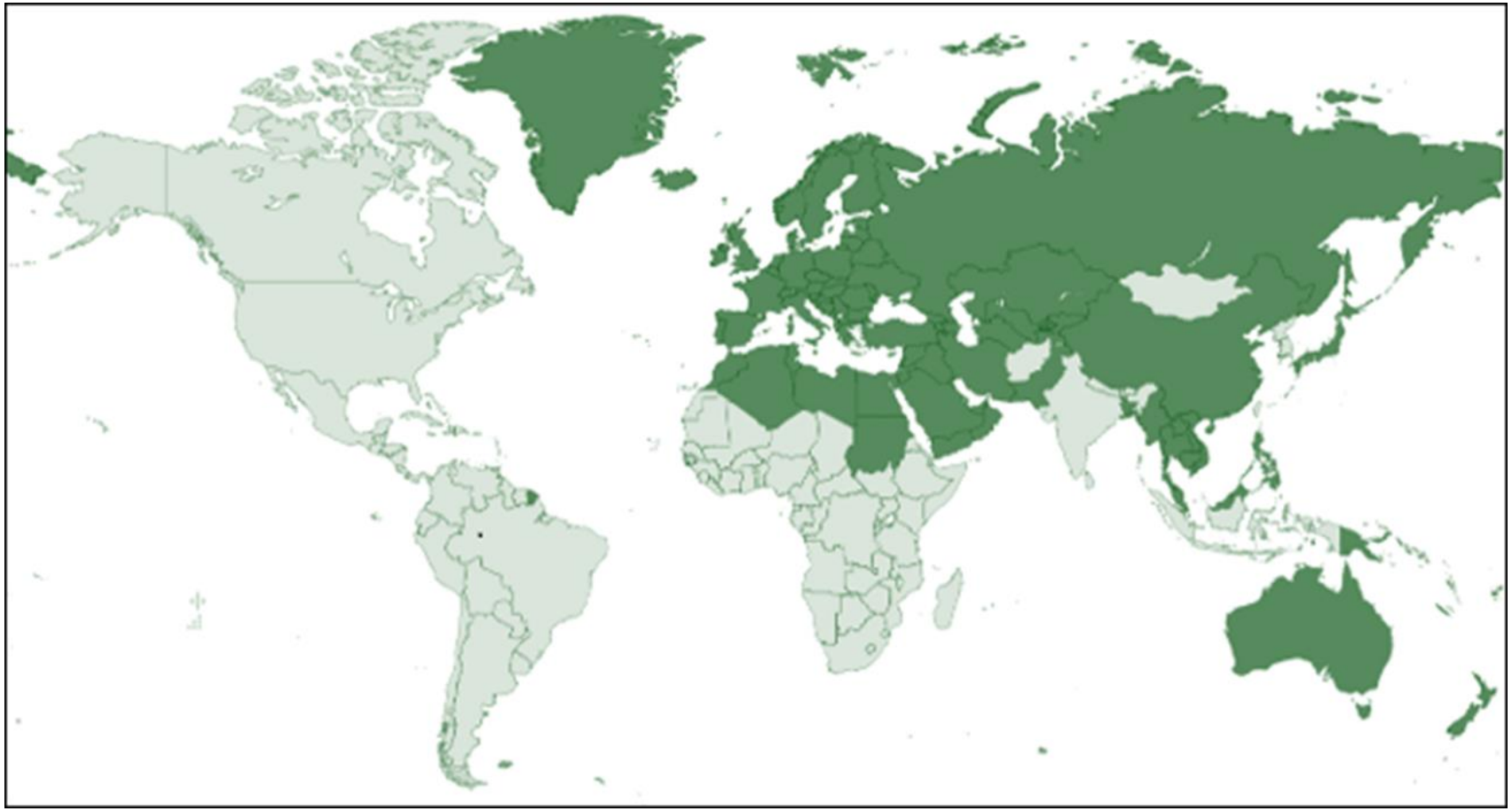
WHAT IWXXM DATA DO WE HAVE?



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```

- `-H "Authorization: Basic Base64(consumerkey:consumer-secret)"`

Met Office

HOW DO YOU GET THE DATA?

2) You make a https request like this:

```
https://gateway.api-management.metoffice.cloud/sadis-opmet/1/collections/
tac_opmet_reports/locations/GLOBAL?datetime=2025-05-05T09:30Z/PT5M
```

Then 5 minutes later make another, but advance the time by 5 minutes.

```
https://gateway.api-management.metoffice.cloud/sadis-opmet/1/collections/
tac_opmet_reports/locations/GLOBAL?datetime=2025-05-05T09:35Z/PT5M
```

Met Office

HOW DO YOU GET THE DATA?

```
https://gateway.api-management.metoffice.cloud/sadis-opmet/1/collections/
tac_advisory_reports/locations/AFI?datetime=2025-05-05T09:30Z/PT5M
```

Then 5 minutes later…

```
https://gateway.api-management.metoffice.cloud/sadis-opmet/1/collections/
tac_advisory_reports/locations/AFI?datetime=2025-05-05T09:35Z/PT5M
```

Met Office

REQUEST RESPONSES

If the request is successful you get a small response file containing a url that can be followed to get the data in a zip file (a redirect).

If no data is published in the last 5 minute period you will get a “no data” code. This is a common occurrence when making “advisory” and “graphical reports”

Met Office

REQUEST RESPONSES

TAC_opmet_reports_Global_20231012T1505_20231012T1510.zip

- AIREP
  - UARS61_RURD_121505_c514f80c5226f8d39e36c04e25f8767e
- METAR
  - SAAE31_VTBD_121500_a892ed2c43ce2771019830ce701b8344
  - SAAU32_YPCC_121500_21863aa473c5676e56f05e78102319a5
- SIGMET
  - WSAU21_YMMM_121505_7a458357223102e5fe8d4018d73210c
  - WSMA31_FIMM_121500_014b948b9b979554b75ecaf641119e59
- TAF
  - FCRE31_FMEP_121100_AAA_62de21312d8ef366f47694759cb40400
  - FCTS31_DTKA_121500_01acb57ad591cb97b347978a21366d99
  - FTUS24_KLAS_121506_AAA_1a3a077b72ca7adbd28129e427b24512

Met Office

BE AWARE:

- We only hold 36 hours worth of data on the system in case you have a system outage.

- There is no need to download the global files and regional files you will get duplicate data. We also have a fair use policy in place.

Met Office

Thank you for listening