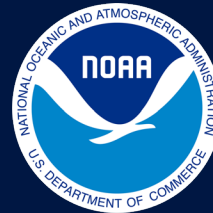


WIFS API

Austin Cross
Aviation Weather Center
(WAFC Washington)



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service

- WIFS provides weather information for international flight navigation
- Provides gridded forecasts, SigWx information, and OPMET data

```

METAR KSF0 061856Z 25010KT 10SM FEW006 SCT022 19/12 A3000 RMK A02 SLP150 T01890122 $

TAF KSF0 061740Z 0618/0724 24006KT P6SM SCT015
TEMPO 0619/0619 OVC020
FM062000 26015KT P6SM SKC
FM070200 26018KT P6SM BKN015
FM071900 28015KT P6SM SCT015

METAR PAF0 061853Z 00000KT 10SM FEW090 FEW140 20/09 A2980 RMK A02 SLP122 T02000094 $

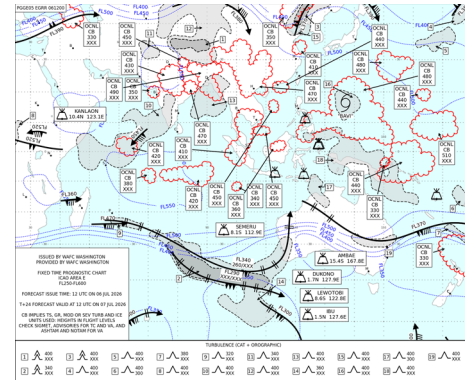
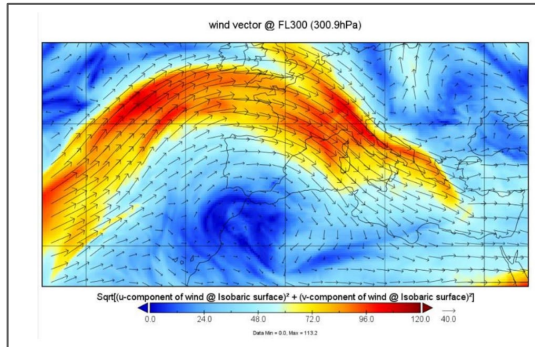
TAF PAF0 061735Z 0618/0724 09005KT P6SM FEW060 SCT120
FM062300 06006KT P6SM VCSH BKN050 BKN100
PROB30 0623/0704 VRB10G20KT 6SM -TSRA BKN050CB
FM070600 02005KT P6SM VCSH SCT060 BKN100
FM071000 02003KT P6SM BKN080

METAR KATL 061852Z 23007KT 10SM SCT036TCU SCT075 BKN180 BKN250 31/22 A2999 RMK A02 SLP145 CB

TAF KATL 061743Z 0618/0724 24007KT P6SM SCT035 BKN200
PROB30 0620/0624 VRB10G20KT 4SM -TSRA BKN035CB
FM070200 24003KT P6SM FEW060 SCT200
FM071500 27007KT P6SM SCT040

METAR KJFK 061851Z 05013KT 10SM -RA BKN080 OVC012 21/19 A3004 RMK SLP173 P0002 T02060194

TAF KJFK 061737Z 0618/0724 07013G19KT 3SM SHRA BR OVC008
FM062100 07013KT 3SM SHRA BR OVC005
    
```



WIFS API

- WIFS API service launched February 2024
 - More data with a modern API interface
- Upgraded June 2026 for better performance and reliability
- Currently in parallel with legacy file-based WIFS access
- ***Legacy WIFS will shut down in November 2028***
 - *Note: BUFR SigWx is on legacy WIFS and will discontinued Nov 2028*
- Please take advantage of this time to test and adopt API access!

- Getting Access
- How to Retrieve
 - OPMET
 - SigWx
 - GRIB2
- Documentation

POST /api/users/login

Request:

```
import { Request, Response } from
'express';

app.get('/api/user/:id', (req:
Request, res: Response) => {
  const userId = req.params.id;
  res.json({
    id: userId,
    name: 'John Doe',
    email:
'john.doe@example.com',
  });
});
```

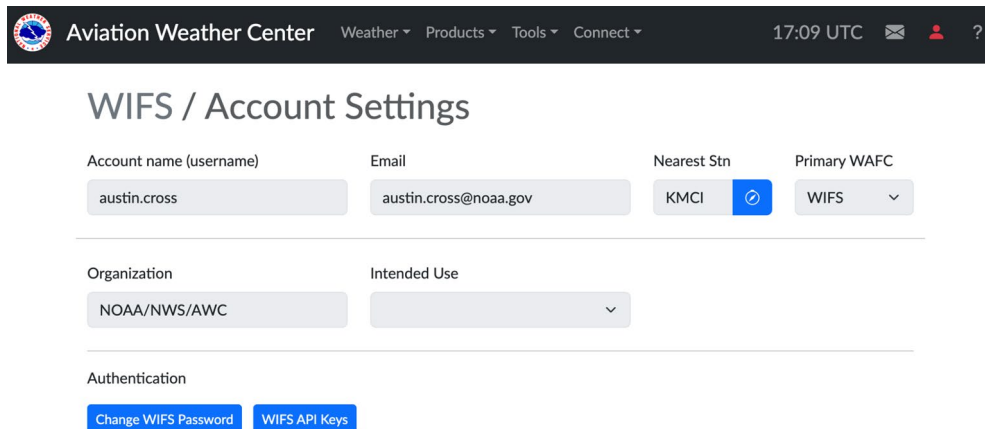
Response:

```
{
  "status": "success",
  "message": "User authenticated successfully.",
  "data": {
    "userId": "12345",
    "name": "John Doe",
    "email": "user@example.com",
    "token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpzZW50aWZlIiwiaWF0IjoiMTYxMjM0NTY3In0="
  }
}
```

API request example from evoltsoft.com

Access

- WIFS account required: must be approved by applicable Met Authority
- AviationWeather.gov user account required to obtain credentials
 - User account is required to create and maintain API keys



The screenshot shows the 'WIFS / Account Settings' page of the Aviation Weather Center. The header includes the center's logo, name, navigation links (Weather, Products, Tools, Connect), and the current time (17:09 UTC). The main content area is divided into sections for account information, organization, and authentication. The account information section includes fields for Account name (username), Email, Nearest Stn, and Primary WAFC. The organization section includes fields for Organization and Intended Use. The authentication section includes buttons for 'Change WIFS Password' and 'WIFS API Keys'.

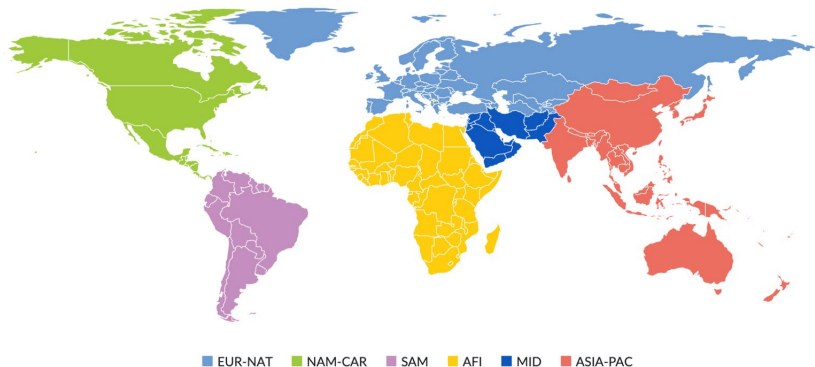
Account name (username)	Email	Nearest Stn	Primary WAFC
austin.cross	austin.cross@noaa.gov	KMCI	WIFS

Organization	Intended Use
NOAA/NWS/AWC	

Authentication

<https://aviationweather.gov/wifs/account/>

OPMET



- OPMET data available in five min intervals, advisories 20 min interval
- Need to identify collection and region (or GLOBAL)
- ISO 8601 time intervals
e.g. 2026-07-06T17:50Z/PT5M

Collection	Description
tac_opmet_reports	This collection contains METAR, TAF, SPECI, SIGMET (all types), AIRMET, GAMET and special AIREPs in the traditional alphanumeric code format. This data is available in regional subsets (see the table of regions under Reports).
iwxxm_opmet_reports	This collection contains METAR, TAF, SPECI, SIGMET (all types) and AIRMET, in IWXXM format. This data is available in regional subsets, as described in table 15.
tac_advisory_reports	This collection contains 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.
iwxxm_advisory_reports	This collection contains tropical cyclone advisories, volcanic ash advisories and space weather advisories in IWXXM format.
graphical_reports	This collection volcanic ash graphics and tropical cyclone graphics in .png format.
notices	This collection contains 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

OPMET

OPMET download

/wifs/api/collections/<collection name>/locations/<region>?datetime=<date>

For example:

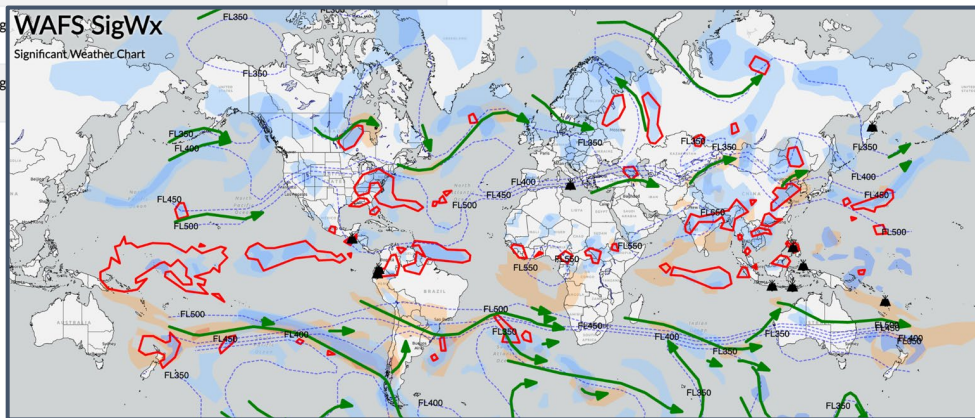
```
>curl -O /wifs/api/collections/tac_opmet_reports/locations/GLOBAL?datetime=2026-07-06T17:50Z/PT5M
>ls -ltrh
-rw-r--r--  1 user user   22 Jul  6 18:10 tac_opmet_reports_GLOBAL_2026-07-06T17_50_00.000Z_2026-07-
>unzip tac_opmet_reports_GLOBAL_2026-07-06T17_50_00.000Z_2026-07-06T17_55_00.000Z.zip
Archive:  tac_opmet_reports_GLOBAL_2026-07-06T17_50_00.000Z_2026-07-06T17_55_00.000Z.zip
  inflating: AIREP/UANT01_AAL733_061754_8be42b5f760449d8eb833cb9480e809e
  inflating: AIREP/UANT01_UAL263_061754_a4464daf33a368852c5c4acf9db8e475
  inflating: METAR/SAUK25_EGPO_061750_3d3504509e373d472c54dc0b92b5bb8e
  inflating: METAR/SAUK25_EGPN_061750_a1ff17b985fdc3f866015086ebc1ea66
  inflating: METAR/SAUK25_EGPL_061750_8125a5d448599987ea316521dadff395
```

- Charts available in IWXXM format
- Validation PNG graphics to ensure proper visualization
- Request a single chart or range of times

Washington data	London data	Description
kkci_iwxxm_forecasts	egrr_iwxxm_forecasts	This collection contains the IWXXM files.
kkci_charts_global	egrr_charts_global	This collection contains the Mercator charts that can be used for checking the IWXXM has been properly visualized.
kkci_charts_northpole	egrr_charts_northpole	This collection contains the Northern Hemisphere Polar Stereographic charts that can be used for checking the IWXXM has been properly visualized.
kkci_charts_southpole	egrr_charts_southpole	This collection contains the Southern Hemisphere Polar Stereographic charts that can be used for checking the IWXXM has been properly visualized.

Note: BUFR format data is only on legacy WIFS and will be retired in Nov 2028

Example
depiction



SigWx

SigWx download

/wifs/api/collections/<collection name>/locations/GLOBAL?datetime=<date>

For example:

```
>curl -O /wifs/api/collections/kkci_iwxxm_forecasts/locations/GLOBAL?datetime=2026-07-06T18:00:00Z
>ls -ltrh
-rw-r--r--  1 user user   22 Jul  6 18:10 GLOBAL.xml
>cat GLOBAL.xml
<?xml version="1.0" encoding="UTF-8"?>
<iwxxm:WAFSSignificantWeatherForecast
  xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:iwxxm="http://icao.int/iwxxm/2023-1"
  xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" gml:id="uuid.cf9aecc1-8c8d-4774-9715-68f87
```

GRIB data

0.25-degree horizontal resolution

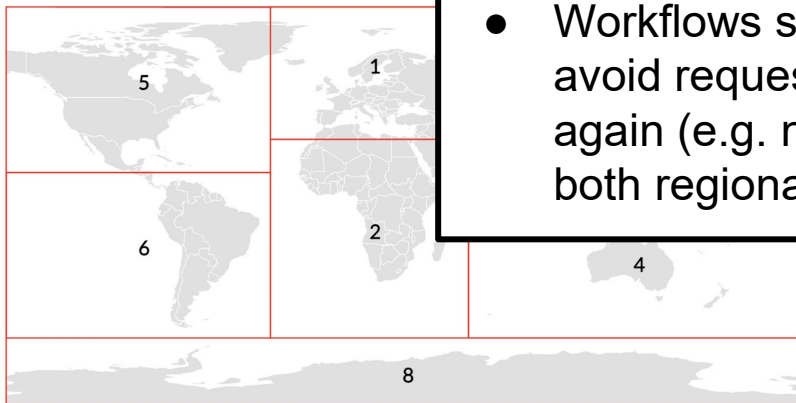
- Wind U/V - 56 vertical levels from FL050 to FL600
- Temperature - 56 vertical levels from FL050 to FL600
- Geospatial Height - 56 vertical levels from FL050 to FL600
- Relative Humidity - 14 vertical levels from FL050 to FL180
- Tropopause height and Tropopause temperature
- Max wind height, and max wind u/v
- Icing Severity - 26 vertical levels from FL050 to FL180
- Vertical levels from FL100 to FL450

1.25-degree horizontal resolution

- Wind U/V - 17 vertical levels from FL050 to FL530
- Temperature - 17 vertical levels from FL050 to FL530
- Geopotential Height - 17 vertical levels from FL050 to FL530
- Relative Humidity - 5 vertical levels from FL050 to FL180

se temperature
u/v

- Need to identify parameters, region, and times for download
- Workflows should be optimized to avoid requesting the same data again (e.g. no reason to request both regional and global grids)



Times for 1.25 degree

Time grouping	Forecast hours
006-012	F06, F09, F12
015-021	F15, F18, F21
024-030	F24, F27, F30
033-036	F33, F36

042-048	F42, F45, F48
every six hours (temp, wind, height only)	
054-066	F54, F60, F66
072-084	F72, F78, F84
090-102	F90, F96, F102
108-120	F108, F114, F120

GRIB collections

Collection metadata

/wifs/api/collections/<collection name>

```
{
  "id": "kwbc_wafs_tropjet_0p25",
  "title": "Washington World Area Forecast collection at 0.25 degree horizontal resolution for Tropopause and Max Wind forecast data.",
  "description": "Global Forecast data for Tropopause Height, Tropopause Temperature, Maximum U Wind, Maximum V Wind and Maximum Wind Height Weather parameters",
  "keywords": [
    "kwbc",
    "max_u_wind",
    "max u-component of wind",
    "max_v_wind",
    "max v-component of wind",
    "max_wind_ht",
    "icao standard atmosphere height",
    "trop_temp",
    "temperature"
  ],
  "extent": {
    "spatial": {
      "bbox": [
        -180,
        -90,
        180,
        90
      ],
      "crs": "http://www.opengis.net/def/crs/OGC/1.3/CRS84"
    },
    "vertical": {
      "interval": [],
      "values": [],
      "vrs": "VERTCS[\"WGS_1984\", DATUM[\"D_WGS_1984\", SPHEROID[\"WGS_1984\", 6378137.0, 298.257223563]], PARAMETER[\"Vertical_Shift\", 0.0], PARAMETER[\"Direction\", 1.0], UNIT[\"Meter\", 1.0]], AXIS[\"Up\", UP]"
    }
  }
}
```

GRIB items

Items metadata

/wifs/api/collections/<collection name>/items

```
{
  "type": "FeatureCollection",
  "features": [
    {
      "id": "YHDYA1006-008FL998",
      "type": "Feature",
      "properties": {
        "name": "YHDYA1006-008FL998",
        "name_alt": "https://aviationweather.gov/wifs/api/collections/kwbc_wafs_tropjet_0p25/items/YHDYA1006-008FL998",
        "label": "max_wind_ht",
        "model_run_time": "2026-07-06T12:00:00.000Z",
        "completion_time": "2026-07-06T17:20:56.000Z",
        "datetime": "2026-07-06T18:00:00.000Z/2026-07-06T20:00:00.000Z",
        "parameter-name": "max_wind_ht",
        "resolution": "0.25"
      },
      "geometry": {
        "type": "Polygon",
        "coordinates": [
          [
            [
              -30,
              90
            ],
            [
              -30,
              30
            ],
            [
              60,
              30
            ],
            [
              60,
              90
            ],
            [
              -30,
              90
            ]
          ]
        ]
      }
    }
  ]
}
```

GRIB items

Checking for new data

/wifs/api/collections/<collection name>/items

In each item model time and update is listed:

```
"id": "YHDYA1006-008FL998",  
  "type": "Feature",  
  "properties": {  
    "name": "YHDYA1006-008FL998",  
    "label": "max_wind_ht",  
    "model_run_time": "2026-07-06T12:00:00.000Z",  
    "completion_time": "2026-07-06T17:20:56.000Z",  
    "datetime": "2026-07-06T18:00:00.000Z/2026-07-06T20:00:00.000Z",  
    "parameter-name": "max_wind_ht",  
    "resolution": "0.25"  
  }  
}
```

Best practice: check for updated data from items listings before downloading to ensure it's up-to-date

GRIB download

GRIB2 download

/wifs/api/collections/<collection name>/items/<item name>

For example:

```
>curl -O /wifs/api/collections/kwbc_wafs_tropjet_0p25/items/YHDYA1006-008FL998
>ls -ltrh YHDYA1006-008FL998
-rw-r--r-- 1 user user 299K Jul  6 17:51 YHDYA1006-008FL998
>wgrib2 YHDYA1006-008FL998
1:0:d=2026070612:ICAHT:max wind:6 hour fcst:
2:102414:d=2026070612:ICAHT:max wind:7 hour fcst:
3:204351:d=2026070612:ICAHT:max wind:8 hour fcst:
```

GRIB download

Script example using Python to download South America icing and turbulence:

```
#!/usr/bin/python
```

```
import time
import urllib.request
from pathlib import Path
```

```
GRID = "A6"
```

```
PARAMS = ["I", "T"]
```

```
HOURS = ["006-008", "009-011", "012-014", "015-017", "018-020", "021-023"]
```

```
BASE_URL = "https://aviationweather.gov/wifs/api/collections/a/items"
```

```
for param in PARAMS:
```

```
    for hours in HOURS:
```

```
        url = f"{BASE_URL}/Y{param}DY{GRID}{hours}FLALL"
```

```
        print(f"Downloading {filename} ...")
```

```
        urllib.request.urlretrieve(url, Path(filename))
```

```
        time.sleep(5)
```

```
print("Done.")
```

- Loops through forecast hour groups
- Delay between files to prevent rate limiting

Best Practices

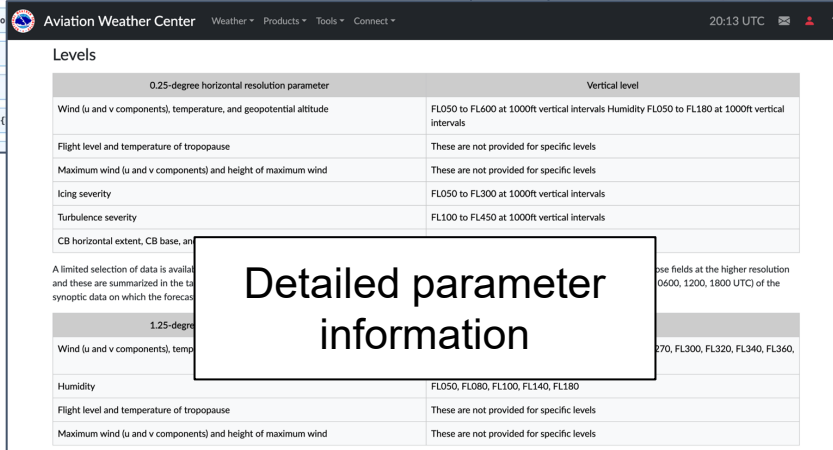
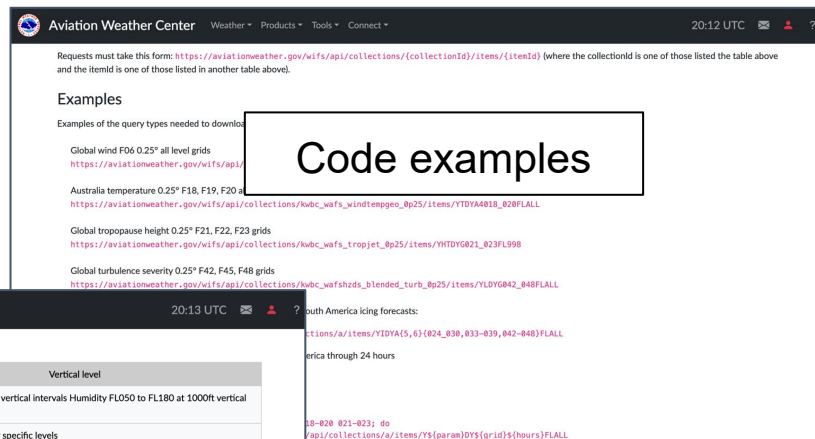
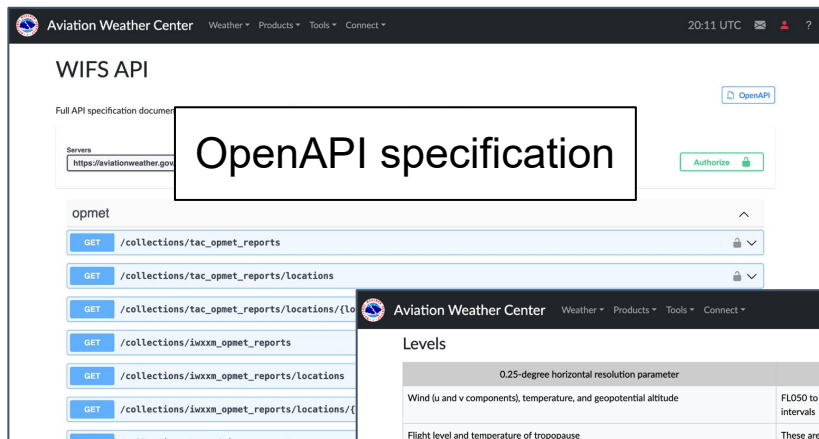
- Avoid re-downloading the same data
 - Check for model updates before requesting gridded data
 - No need to download both global data and regional subsets
- Some restrictions are in place to ensure access for all users
 - Requests are rate limited to 100 requests per minute
 - Data requests are limited to 5000 individual requests per day
- Error message report a code and description
 - Compare to documentation as needed for interpretation

User's Guide



<https://aviationweather.gov/wifs/>

User's Guide



Help Desk

The screenshot displays the Aviation Weather Center's WIFS / Help Desk interface. A 'New Ticket' modal form is open, featuring a 'Type' dropdown set to 'WIFS Help Desk' and a 'Reporter' field with the email 'austin.cross@noaa.gov'. Below these are fields for 'Subject' and 'Description'. An 'Add' button is at the bottom right of the form. The background shows a table with columns 'ID' and 'Last Updated'.

ID	Last Updated
----	--------------

Please reach out to the help desk with any questions or concerns

<https://aviationweather.gov/wifs/>

A view of Earth from space, showing the Americas and the Atlantic Ocean. The Earth's surface is visible with clouds and landmasses, set against a dark blue background of space with scattered stars.

Questions?

<https://aviationweather.gov/wifs/>

Reminder: legacy WIFS will shut down in November 2028!