



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
1325 East-West Highway
Silver Spring, Maryland 20910-3283
June 18, 2008

MEMORANDUM FOR: NWS Regions

FROM: W/OS2 Ken Graham <signed>

SUBJECT: Implementation of Operational QPF, Sky Cover and Snow Amount

The NWS will transition the National Digital Forecast Database (NDFD) Quantitative Precipitation Forecast (QPF), Sky Cover and Snow Amount grid to operational status on July 8, 2008.

The table below describes availability for these three grids beginning July 8, 2008.

Element	CONUS	Puerto Rico/Virgin Islands	Hawaii	Guam	Alaska
QPF	To become operational	To become operational	To become operational	Not available	Not available
Snow Amount	To become operational	Not required	To become operational	Not required	Not available
Sky Cover	To become operational	To become operational	To become operational	To become operational	Not available

The Corporate Board Operations Committee approved the transition of these grids from experimental to operational on January 30, 2008. The information below describes the definition, grid availability, collaboration thresholds, recommended grid creation methodology, forecast projected times and grid population assistance tools for the QPF, Sky Cover and Snow Amount.

We appreciate all those involved in supporting this transition which enhances the services offered by the National Weather Service.

QPF DEFINITIONS, GRID AVAILABILITY, THRESHOLDS

6-Hour Quantitative Precipitation Forecast (QPF6) - The expected amount of liquid precipitation (in hundredths of inches) accumulated over a six hourly period. NDFD valid periods are six hours in length beginning and ending at 0600, 1200, 1800, and 0000 UTC.

- **NDFD Grid Availability:** *QPF grids will be available each 6-hour period out to 72 hours from 0000 UTC Day1.*
- **Collaboration Threshold:** .25 for < 1.5, .50 for <3.0, and 1.0 for >= 3.0. Checks are performed if at least one WFO has forecast >.25.

Web page reference: https://bestpractices.nws.noaa.gov/contents/ndfd-stats/supplementalpages/NDFD_threshlds.htm

SKY COVER DEFINITION, GRID AVAILABILITY, THRESHOLDS

Sky Cover - the expected amount of opaque clouds (in percent) covering the sky valid for the indicated hour.

- **NDFD Grid Availability:** *Sky Cover will be available in at 3 hour increments through 72 hours, then at 6 hour increments out to 168 hours from 00 UTC Day 1.*
- **Collaboration Threshold:** 25% (35% in complex terrain).

Web page reference: https://bestpractices.nws.noaa.gov/contents/ndfd-stats/supplementalpages/NDFD_threshlds.htm

SNOW AMOUNT DEFINITION, GRID AVAILABILITY, THRESHOLDS

6-Hour Snow Accumulation - The expected total accumulation of new snow (in inches) during a 6 hour period. A snow accumulation grid will be specified whenever a measurable snowfall is forecast for any hour during a valid period. Valid periods for the NDFD begin and end at 0600, 1200, 1800, and 0000 UTC.

- **NDFD Grid Availability:** Snow Accumulation grids will be available each 6 hour period out to 48 hours from 00 UTC Day 1.
- **Collaboration Threshold:** 2 for < 6, 4 for <12, and 6 for >= 12. Checks are performed if at least one WFO has forecast >2.

Web page reference: https://bestpractices.nws.noaa.gov/contents/ndfd-stats/supplementalpages/NDFD_threshlds.htm

RECOMMENDED GRID CREATION METHODOLOGY

QPF:

- 1.) Continue to support and improve gridded verification and analysis capabilities at the WFO level. (*Regions & WFOs Leads*)
- 2.) WFOs continue to fine tune smart tools (*WFOs and SMART Tool Team Leads*)
- 3.) Forecasters continue to utilize HPC forecasts [or RFC forecasts which use HPC QPF] in their forecast process, per QPF Policy Memo (*WFOs Lead*)
<https://bestpractices.nws.noaa.gov/contents/ndfd-stats/GFE/resources/QPFCoordMemo122106.pdf>
- 4.) Regions continue to emphasize the importance of short-term QPF and WFOs collaborating with RFCs and HPC (*Regions & NCEP Leads*)
- 5.) HPC and Regions continue exploring possible adjustments of release of HPC QPF guidance (*Regions & NCEP Leads*)
- 6.) Explore providing QPF guidance for OCONUS WFOs (*OCWWS, PR & AR Leads*)

Sky Cover:

- 1.) Regions encourage WFOs to use gridded MOS Sky Cover (*Regions & OST Leads*)
- 2.) Follow-up on Sky Cover Task Force Recommendations (*OCWWS & OST Leads*)
 - Updating policy (definition, border consistency thresholds)
 - New RTMA sky product development

Snow Amount:

- 1.) Encourage WFOs to initialize Snow Amount grids from QPF grids using collaborated ratio and Smart Tools to convert QPF to Snow Amount (*Regions Lead*)
- 2.) Regions emphasize WFOs collaborate when appropriate with HPC Winter Weather Desk on Snow Amount forecast and ratio (*Regions & NCEP Leads*)
- 3.) Explore providing Snow Amount guidance for WFO Honolulu (*OCWWS & PR Leads*)
- 4.) Continue forward with snow verification OSIP Project (*OCWWS Lead*)

GRID POPULATION ASSISTANCE TOOLS

QPF, Sky Cover and Snow Amount grids have been created by most WFOs for some time. In order to streamline grid production and introduce additional consistency, the following assistance tools are available to the WFO:

1. **National Smart Tool for the QPF, Sky Cover and Snow Amount Grids -**
The National Smart Tools and Smart Initialization Team (STSIT) has provided recommended smart tools to correctly populate the above mentioned grids and perform quality control. WFOs who wish to use this application may download from the National Smart Tool Repository at the following URL:
http://www.mdl.nws.noaa.gov/~applications/STR/nstsit_rcmnd.php3
2. **Gridded Model Output Statistics (GMOS) -** GMOS guidance is available to help populate the database with QPF, Sky Cover, and Snow Amount values utilizing the National Digital Guidance Database. A list of currently available elements and projections is available at:
<http://www.weather.gov/mdl/synop/gmos/gmoselemprojs.pdf>
3. **NDFD Centralized Grid Integrity Check -** A centralized grid integrity check on the NDFD server has been implemented. The central server sends alerts to the WFOs for integrity checks for QPF and Snow Amount. There are no integrity checks for Sky Cover. The Integrity checks involving QPF and Snow Amount are described at: https://bestpractices.nws.noaa.gov/contents/ndfd-stats/GFE/resources/QPF_QC%20CoordMemo_110106.pdf
You can view the national stats at:
https://bestpractices.nws.noaa.gov/contents/ndfd-stats/statistics/dwm_display.php?action=integrity®ion=CONUS
4. **Training** – Training modules for QPF are available from the Commerce Learning Center at:
<https://doc.learn.com/noaa/nws>

The primary modules are:
QPF Module 1: Introduction
QPF Module 2: Predictability
QPF Module 3: Collaboration

Plans are being developed to provide a short summary training session for QPF, Sky Cover and Snow Amount to include definition, recommended tools, and required grids.