NOAA/JPSS

NUCAPS in AWIPS – rethinking information compression and visualization for fast decision making

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NUCAPS in AWIPS since 2014

NUCAPS – NOAA Unique Combined Atmospheric Processing System

Prior to 2014: NUCAPS branches off from NASA AIRS v.5 algorithm and becomes operational system for Metop IASI/AMSU sounders at NOAA

April 2014: NUCAPS went operational for the SNPP CrIS/ATMS sounders

July 2014: NOAA Proving Ground initiative was launched to promote sounding applications

Sep 2014: NUCAPS available in AWIPS for the first time as skew-T plots

March 2016: NUCAPS available in AWIPS as gridded layer maps – thanks to CSPP tools

June 2017: NUCAPS upgrade to full-spectral resolution CrIS to allow CO retrieval applications

2017–: NUCAPS will become operational system for JPSS1 CrIS/ATMS sounders

The questions forecasters ask

NUCAPS satellite sounding observations

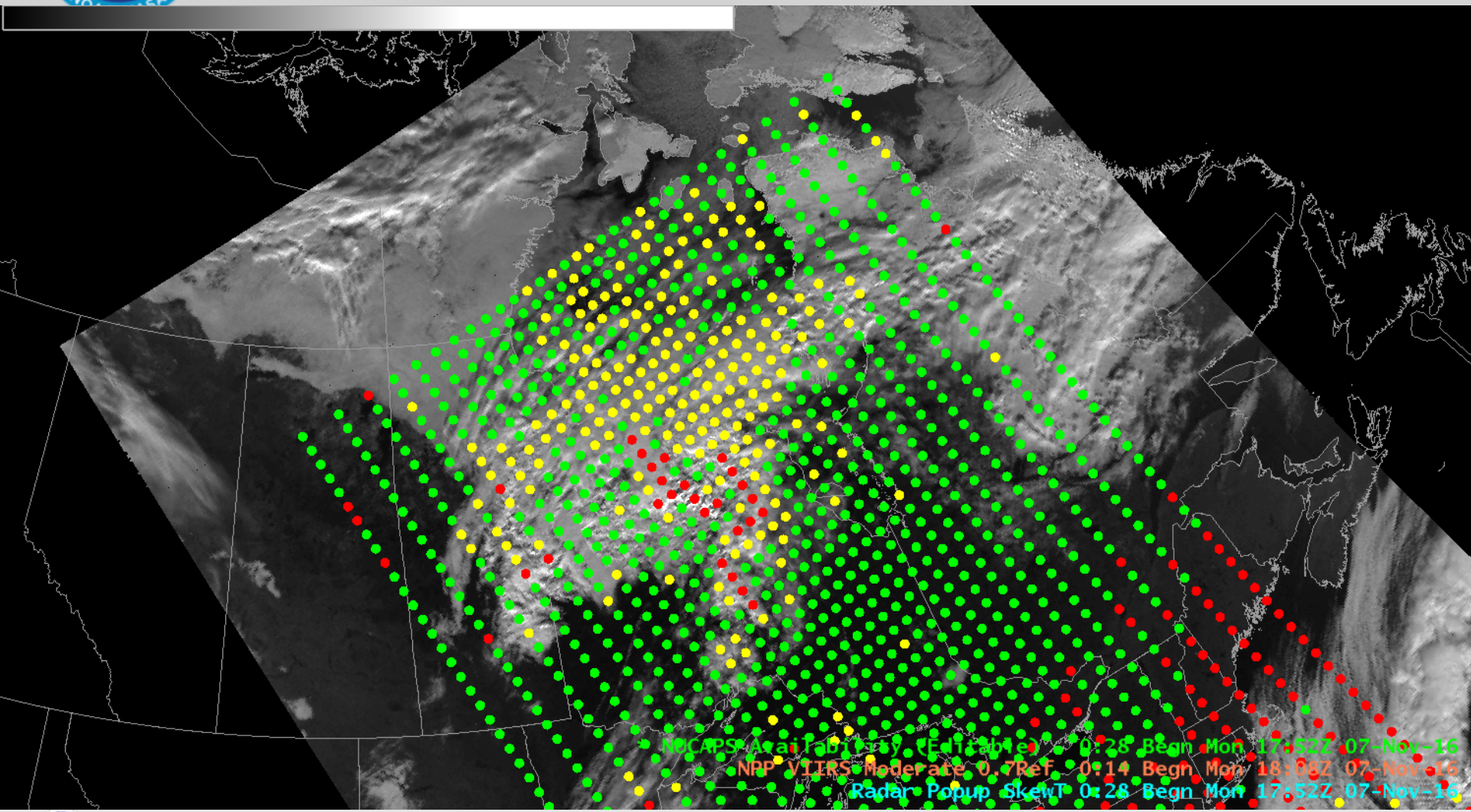
What happened?

What is happening?

CrIS radiance assimilation

What will happen?

NUCAPS as skew-T diagrams

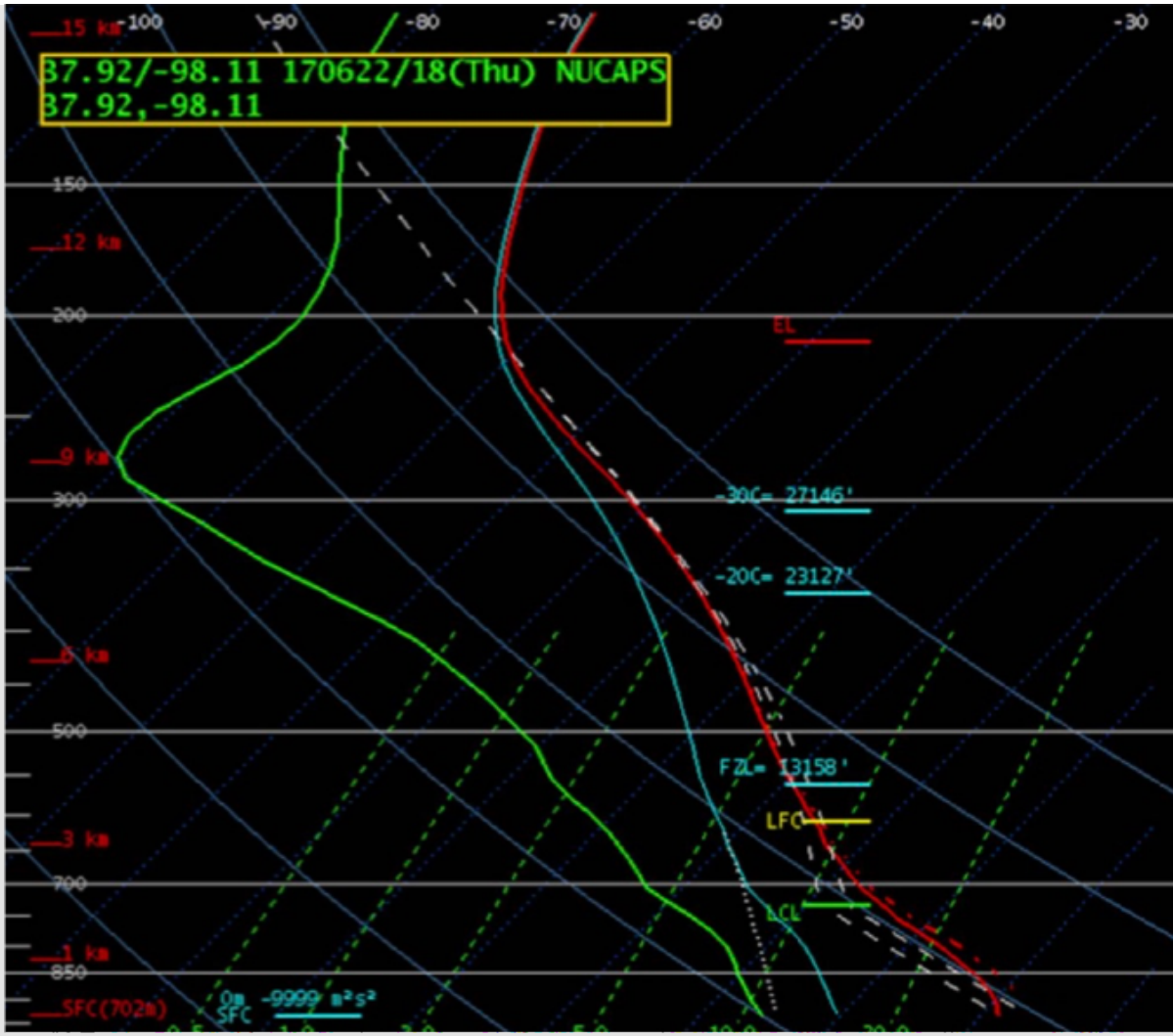


NUCAPS as skew-T diagrams

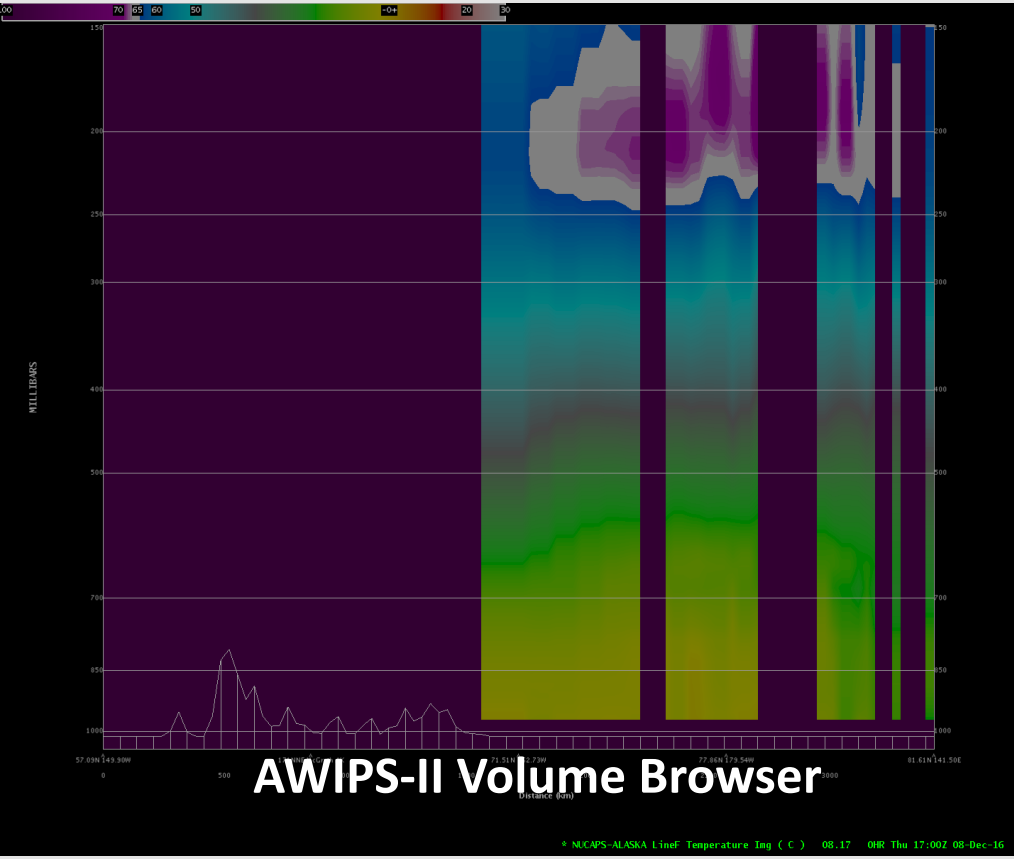
NUCAPS temperature and moisture retrievals are ported to AWIPS-II

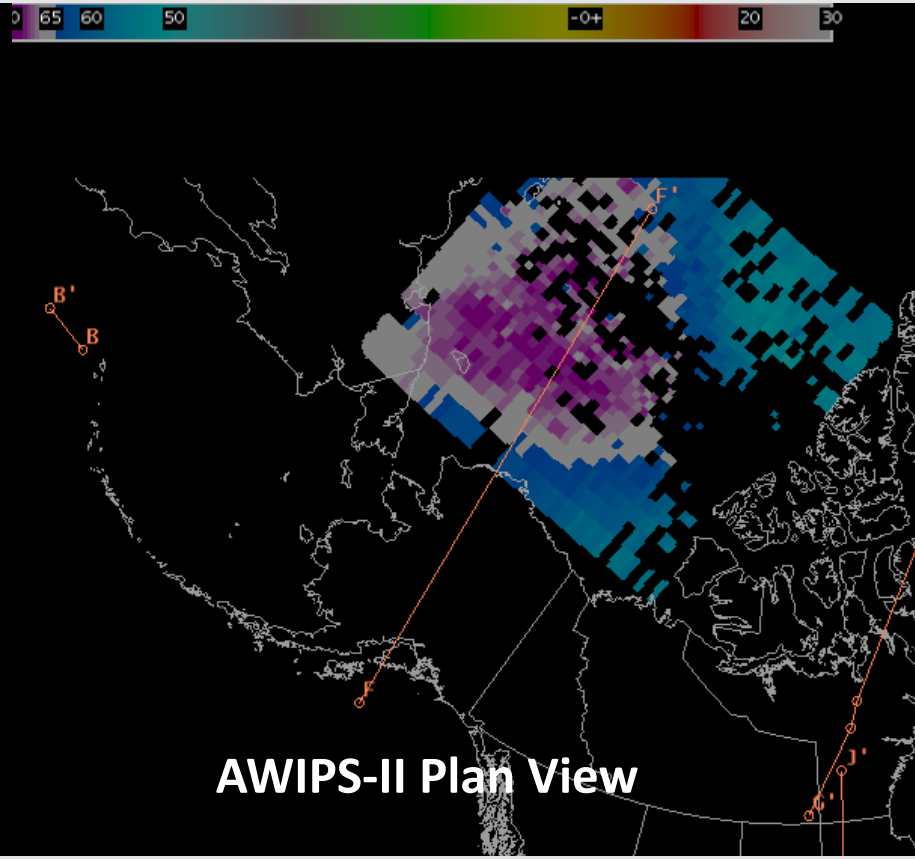
Ability to visualize one skew-T at a time.

Interrogate one vertical column at a time.



NUCAPS as 3-D information





NUCAPS AWIPS latency #1 shortcoming

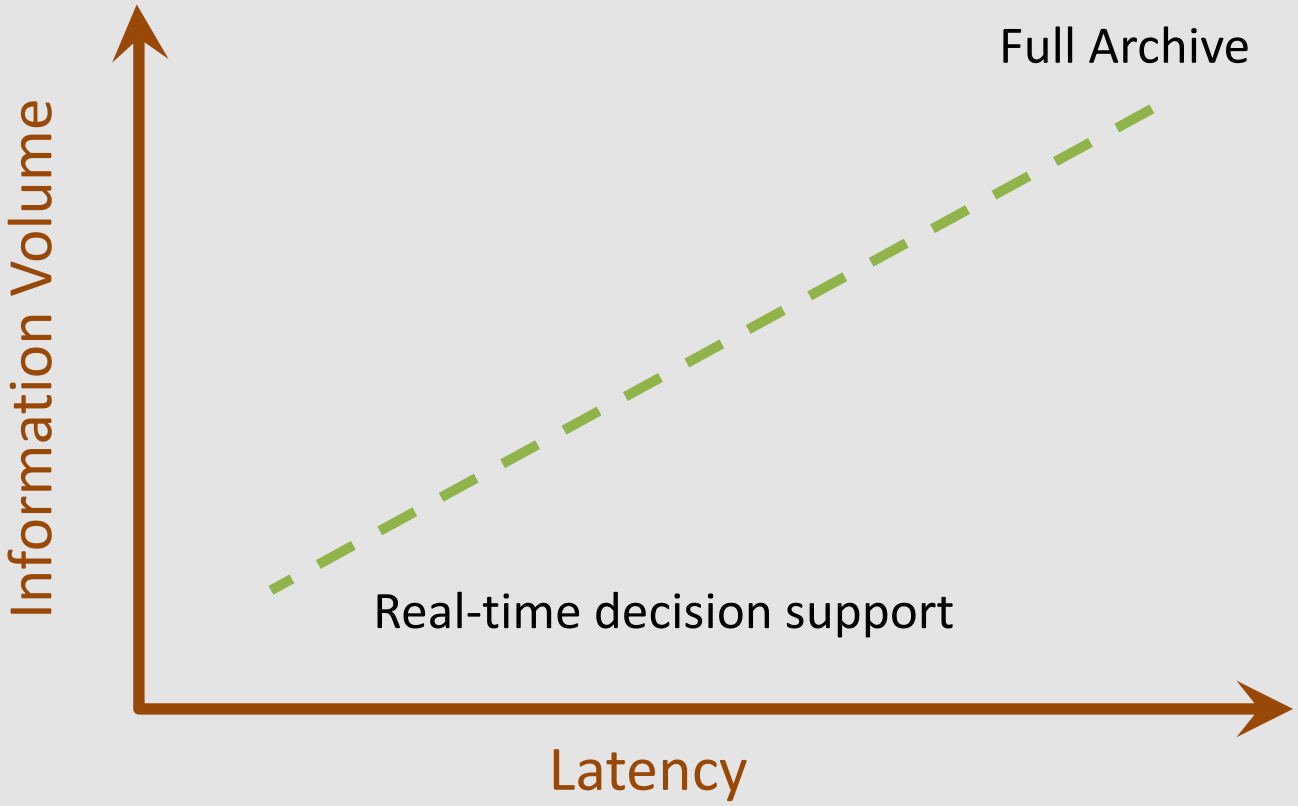
"NUCAPS is like having a lot of 18Z soundings in operational environment" Dan Nietfield

BUT, at present its value is limited because it takes 90 – 120 min after acquisition for NUCAPS skew-T plots to become available in AWIPS

✓**What happened?**

? What is happening?

Rethinking information distribution



What next?

- NUCAPS latency is being addressed – use of direct broadcast stations and CSPP tools (http://cimss.ssec.wisc.edu/cspp/)

- Hazardous Weather Testbed: Spring Experiment for analyzing pre-convective environment: May 2018.

Do the NUCAPS products disseminated at low latency offer real-time decision support?

- Delta fields
- Probability values
- Isothermal fields
- Derived indices
- Target features
- Air quality information, e.g., CO, CH4, O3

Fast decision making requires information that is clean, complimentary, easy to understand and read

Questions?