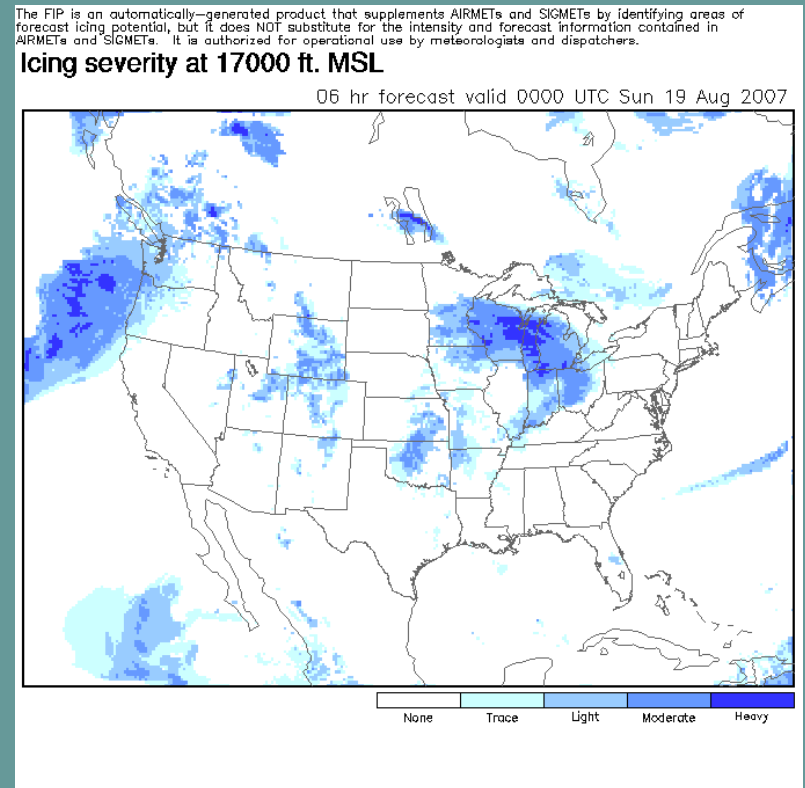


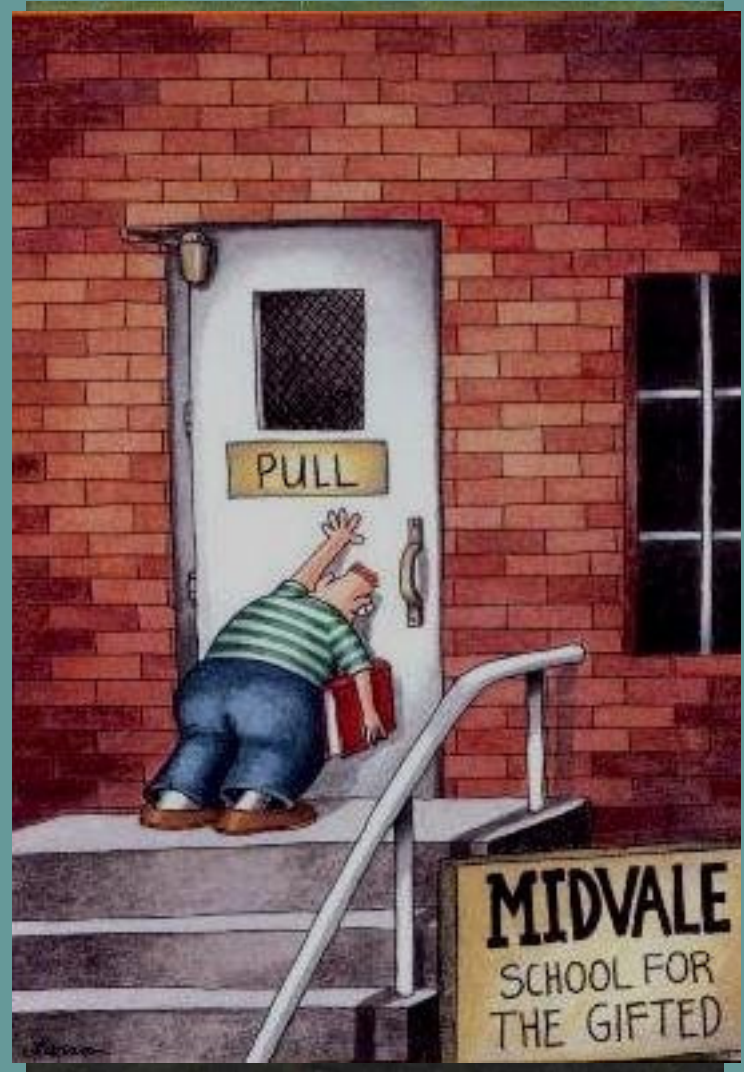
# Future: Smooth Transition

- Persistence: a tough forecast to beat
- Diagnoses have value at  $t+1$ ,  $t+2$ ...
  - Diminish with time
  - Depends on situation
    - Widespread, static (stable)
    - Localized, dynamic
- Diagnosed versus forecast
  - Diag. removes icing where clear
    - Other good information there
  - Forecast makes a good guess
  - Can have marked transitions in time
- Blend diagnosis with observations
  - What we do when forecasting
  - Look at time history, features, trends
    - Extrapolation - situation determines value (weight)
- Difficult, but achievable (e.g. convection)... much gain?



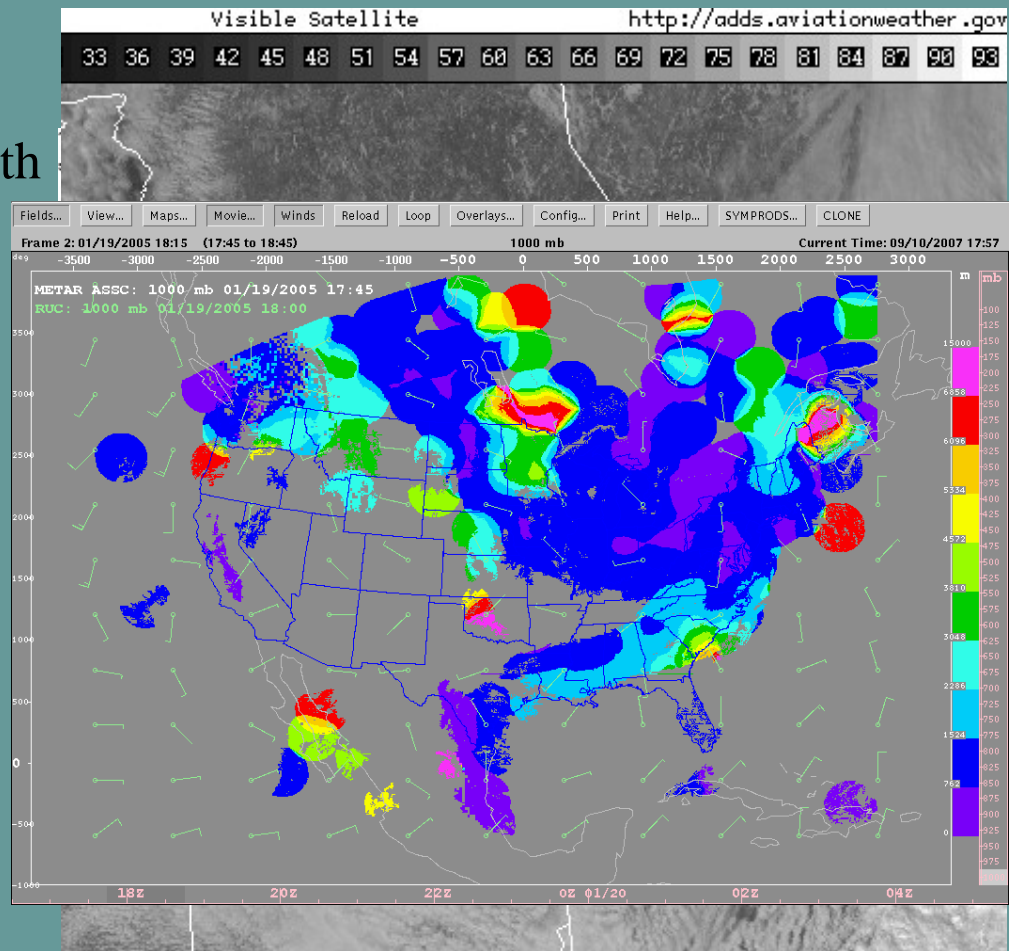
# Perfection?

- We know better
- Great tools
  - Realistic assessments
  - Useful products
    - Awareness, decision making
    - What lies beneath?
- State of the art
  - Improving, but...
  - Lots of room left
    - Low hanging fruit picked
    - Difficult problems
      - Some potential solutions
- Brief look at a few in CIP



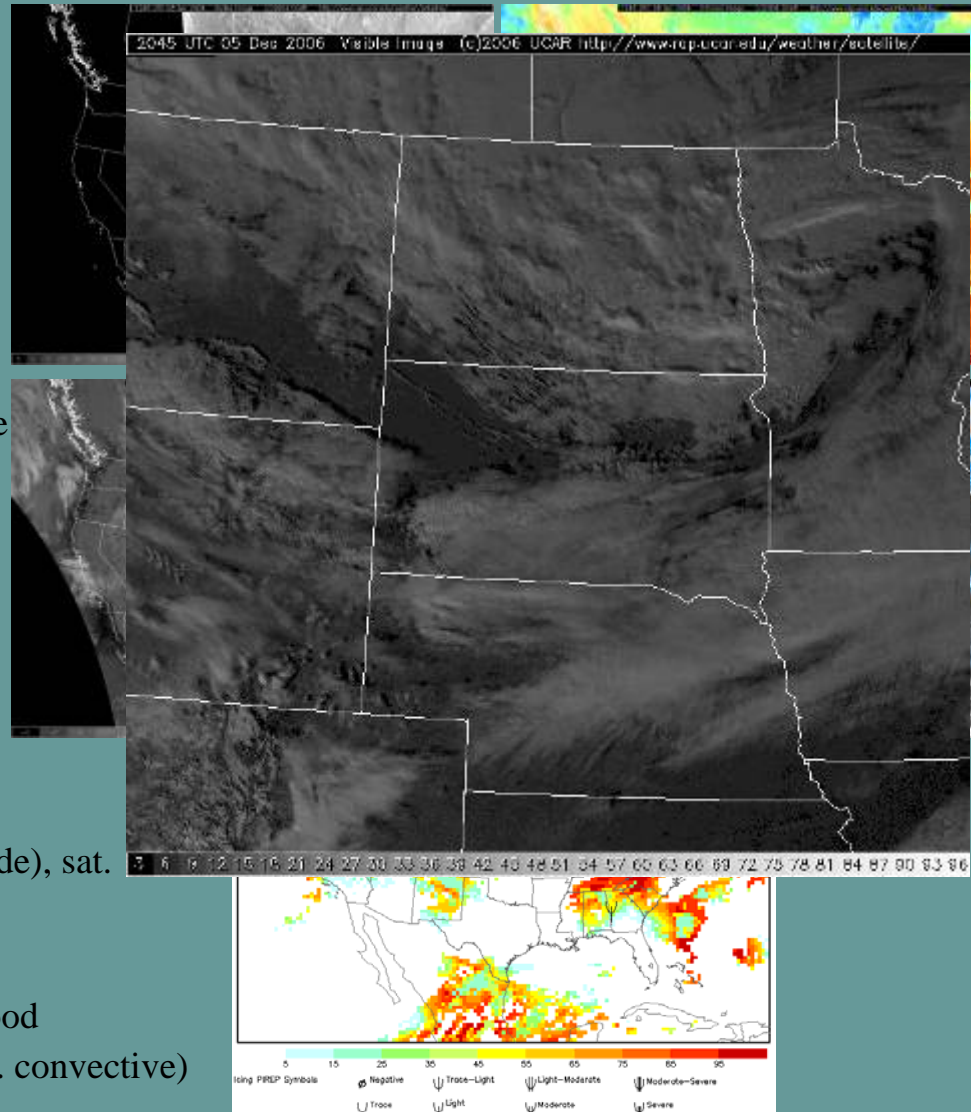
# Use of Point Observations

- PIREPs (simple approach)
  - Yes/no, severity - blend
- Meaning of each decreases with
  - Distance (X, Z)
  - Time
- Thus, so does its influence
- Can we do better?
  - Look for consistency
  - Irregularly shaped influence
    - Space, time
    - Vertically (cloud tops)
  - Timing of PIREP/feature
- Crude tests with surface obs
  - Using IR, radar, topography
  - Add more data - model
  - May work better with PIREPs (esp. for satellite info)



# Diurnal Changes

- Daytime: most information
  - Sunlit clouds (vis, ch2-ref.)
    - Best info about clouds
  - Lots of PIREPs, best METARs
- Nighttime: less and less
  - Satellite info still decent
    - Lose visible, ch2-ref.
    - Still have ch4, ch2 - cloudy, phase
  - Plenty of PIREPs thru evening
    - Then #s decrease w/time
  - Some sfc obs lose augmentation
  - Model initialization worsens
- Solar terminator (sunset, sunrise)
  - Sunrise
    - Everything at its worst
    - PIREPs, sfc obs, models (last sonde), sat.
    - Darkest just before the dawn
  - Sunset
    - Satellite at its worst, others are good
    - Use history, trending, extrap. (e.g. convective)



# The Standard

WAUS46 KPCI 181445

SFOZ WA 181445

AIRMET ZULU UPDT 2 FOR ICE AND FRZLVL VALID UNTIL 182100

AIRMET ICE...WA OR AND CSTL WTRS

FROM 30SSE YDC TO 30NE PDX TO 120WSW ONP TO

110WNW ONP TO 140WTOU TO 20NW TOU TO BLI TO 30SSE YDC

MOD ICE BTN FRZLVL AND FL220. FRZLVL 070-110.

CONDS DVLPG 16Z-18ZAND CONTG BYD 21Z THRU 03Z.

FRZLVL...RANGING FROM 070-ABV 160 ACRS AREA

080 ALG 110W ONP-100WNW ONP-30SW HQM-30ESE TOU-50W BLI

120 ALG 130WNW FOT-110WNW FOT-30S DSD-30NNE PDT-60NNE GEG

160 ALG 140SSW SNS-110SSW SNS-50WSW LAS-40SW LAS



- What we have to beat
- Use tools, but still hands-on
- Its getting better
  - Time/space “res” (currently 6hr)
  - G-AIRMETS
- Pushing the state of the art
  - In the hot seat
    - New ideas... improved products
    - Take time to implement; a process

# The Process

Done?	Item #	Key Dependencies	Key Impacts (#s)	Time from AWTT D4 Decision (months)	Actual Date	FIP-Severity and SLD	Responsible Party	Report To
						Action		
	PDT-1	None	PDT-2	-10	13 Jul 2007	Algorithm freeze for D4 product	PDT	AWC
	PDT-2	PDT-1	QA-all	-9	17 Aug 2007	Real-time, in-house data feed available to QA	PDT	ADDS
	PDT-3	PDT-1	QA-all	-9	17 Aug 2007	Provide post-analysis dataset to QA	PDT	QA
	AvMet-1	PDT-1	TTWG-2, AWTT-1, FAA-1, FAA-2	-7	17 Oct 2007	Deliver Concept of Operations/Use Enhancement and Planning document to AWC	AvMet	TTWG
	QA-1, PDT-4	PDT-3	All	-7	17 Oct 2007	QA data check point – go forward?	QA PDT	AWTT, AWC
	PDT-5	PDT-2	AWC-all	-7	17 Oct 2007	Deliver code & scripts to AWC	PDT	AWC
	ADDS-1	PDT-2	ADDS-2	-6	14 Nov 2007	Display updates completed	ADDS	PDT
	ADDS-2	ADDS-1	ADDS-3, FAA-2	-6	14 Nov 2007	Product goes live on Experimental ADDS	ADDS	PDT, AWC
	PDT-6, AWC-1	None	AWC-all, ADDS-6	-6	14 Nov 2007	Dissemination Format Development (ex. IGRIB need to obtain table Ids)	AWC PDT	ADDS
	AWC-2, PDT-8	PDT-5	AWC-all	-5	14 Dec 2007	AWC internal code & infrastructure handling complete	AWC PDT	PDT
	AWC-3	AWC-1	AWC-8, ADDS-6	-5	14 Dec 2007	Obtain WMO Headers (if new product)	AWC	ADDS
	QA-2	PDT-3, QA-1	All	-5	14 Dec 2007	QA verification check point – go forward?	QA	AWTT, AWC
	AWC-4	AWC-3, PDT-9	AWC-all	-4	16 Jan 2008	AWC evaluation machine 90-day burn-in begins	AWC	PDT
	FAA-1	AvMet-1	AWTT-1, ADDS-7	-3	13 Feb 2008	Operational Suitability Evaluation complete	FAA	TTWG
	FAA-2	ADDS-2	AWTT-1	-3	13 Feb 2008	All Hazlog Issues Addressed	FAA	AWTT
	AWC-5	AWC-3, AWC-4	QA-4	-3	13 Feb 2008	AWC real-time evaluation data feed available to QA, ADDS	AWC	QA, PDT
	QA-3	PDT-2, PDT-3	AWTT-1	-2.5	28 Feb 2008	QA assessment report delivered to AWTT and PDT	QA	PDT, AWTT
	PDT-7	PDT-1	AWTT-1	-2.5	28 Feb 2008	Technical report delivered to AWTT and QA	PDT	AWTT, QA
	TTWG-1	PDT-7, QA-3	All	-2.25	12 Mar 2008	Technical Review Panel meeting	TTWG	PDT, AWC, AWTT
	TTWG-2	TTWG-1, AvMet-1	AWTT-1	-1.5	1 Apr 2008	User Meeting	TTWG	AWTT
	QA-4	AWC-5, PDT-2	AWTT-1, AWC-9	-1	18 Apr 2008	Secondary evaluation of RAL & AWC feeds complete	QA	PDT, AWTT
	AWTT-1	TTWG-1, QA-4, FAA-2	All	0	15 May 2008	AWTT D4 Decision	AWTT	PDT, AWC, QA
	AWC-6	AWTT-1	AWC-9, ADDS-7	0	15 May 2008	120-day TIN Submittal	AWC	PDT, ADDS
	AWC-7	AWC-4	AWC-5	+0.5	2 Jun 2008	AWC operational machine 30-day burn-in begins	AWC	PDT, ADDS
	ADDS-3	ADDS-2	ADDS-4	+0.5	2 Jun 2008	New display code on non-live OPS ADDS machine	ADDS	PDT, AWC
	ADDS-4	ADDS-3, AWC-5	ADDS-5	+1	18 Jun 2008	OPS ADDS 30-day burn-in begins	ADDS	PDT, AWC
	PDT-8, ADDS-5	PDT-1, ADDS-3	ADDS-7	+2	18 Jul 2008	ADDS user training materials (help page) updated	PDT	ADDS
	AWC-8	AWC-7	AWC-9, ADDS-7	+3	19 Aug 2008	AWC operational machine burn-in complete, given no restarts	AWC	PDT, ADDS
	AWC-9	AWC-3, 6, 8 AWTT-1	ADDS-7	+4	17 Sep 2008	Product becomes available on NOAAPORT	AWC PDT, ADDS	TTWG
	ADDS-6	ADDS-4	ADDS-7	+4	17 Sep 2008	OPS ADDS burn-in complete	ADDS	PDT
	ADDS-7	AWTT-1,	All	+4	17 Sep 2008	Product becomes live on OPS ADDS	ADDS	ALL

# Complacency?





Questions?