Data and Information Streams

A Rapidly Changing Environment in the Forecast Office

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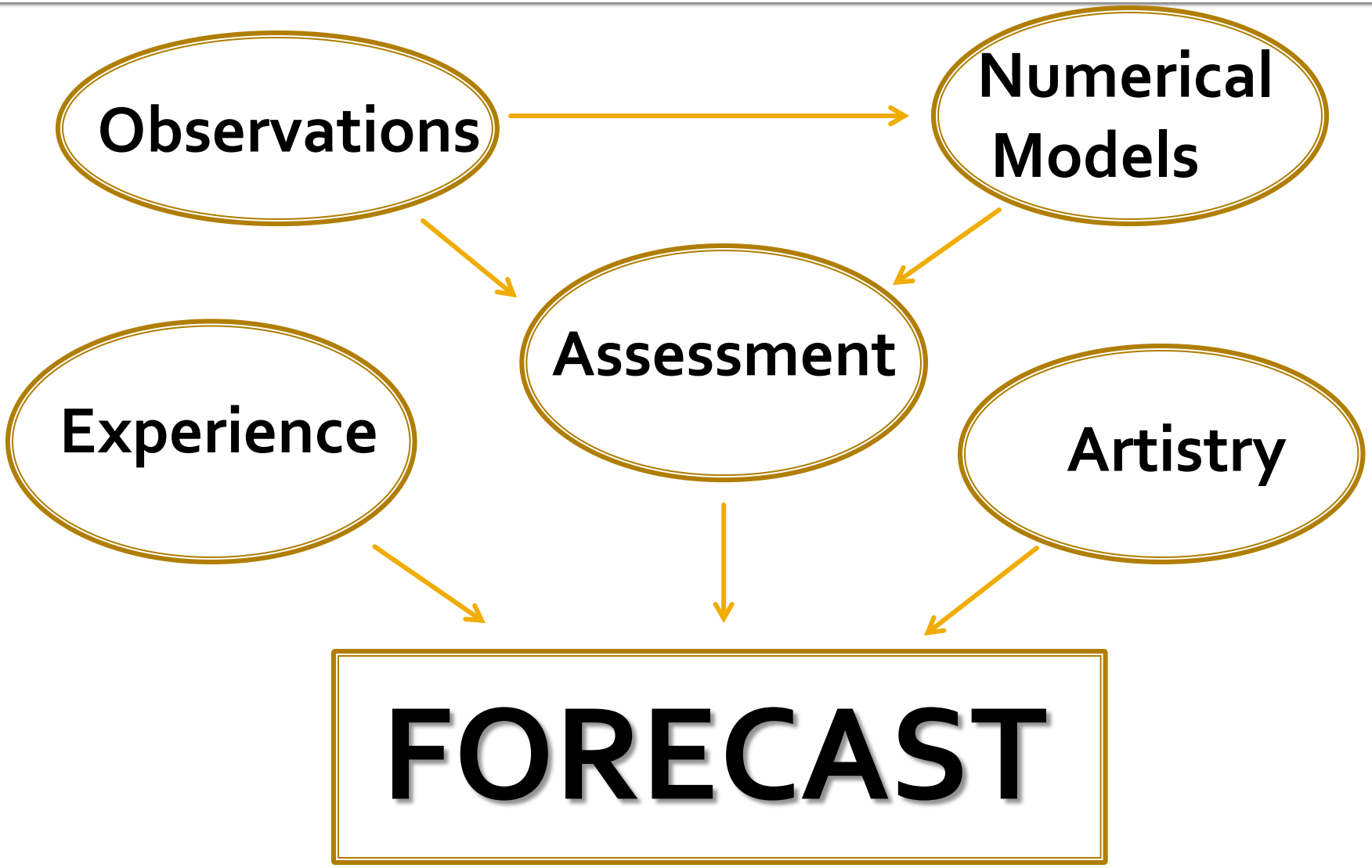
Forecast Production



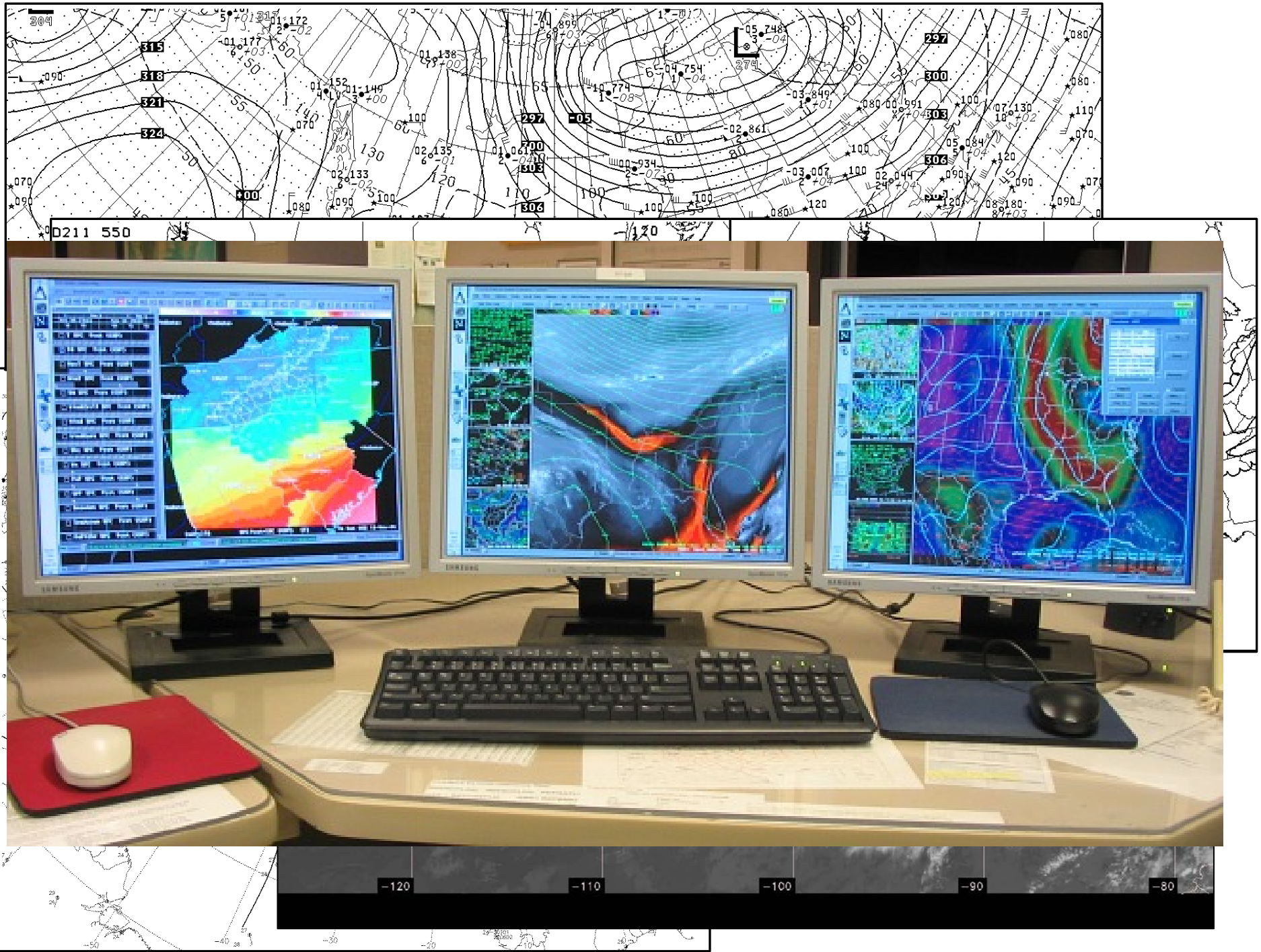
INCOMING …

- METARS
- AWOS
- Radar
  - Non-88D radars
- Upper air soundings
- ACARS
- Profilers
- Satellite
  - Images
  - Sound
    pr
- C
  me
- Citiz
- Strea
- Hydro
- CoCoRaHS

- WebCams
- Social Media
  - Tweets, F
- Chat R
- B
- obiles
- nd Farms
- Situational Awareness Screens
- State Radio/NAWAS
- Telephone

tworks
dio reports
ARS
Lightning
- Ship reports
  - Moving/stationary
- Buoys
- Dart buoys
- Tide gauges
- Numerical models – NCEP
- Numerical models – non-NCEP
- Numerical models – experimental
- Analogs

OVERLOAD !!!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Integration

- Integrated displays
  - If it's geo-tagged and time stamped we can integrate it
- Local Analysis
  - On the fly and up to the minute analyses and short term forecasts
- Multi-perspective view
  - plane vs multi-level / 3-D
- Satellite Broadcast Network (SBN)
- MADIS - database/aggregator
- LDM/LDAD – individualized needs
- Integration crucial for automated processes
  - Non-integrated data is still used
  - **We can't afford to build systems that can't easily deliver data in standard format/pathway**

Numerical Models

- 12 + on any given day
  - Multiple runs per day
  - HRRR
- Ensembles
- Experimenta
  - Usuall
  - St
  - place!
- A
- Ext eme Event Awareness

OVERLOAD !!!


SOOModelBlend
Select Percent of Current Models
ADJECE 0
ADJECEBC 0
ADJECM 0
ADJECMBC 0
ADJECS 0
ADJECSBC 0
ADJLAV 0
ADJLAVBC 0
ADJMAV 0
ADJMAVBC 0
ADJMEN 0
ADJMENBC 0
ADJMET 0
ADJMETBC 0
ADJMEX 0
ADJMEXBC 0
AllBlend 0
BCAllBlend 0
CONSAll 0
BCCONSAll 0
CONSMOS 0
CONSRaw 0
BCCONSRaw 0
CONSShort 0
BCCONSShort 0
DGEX 0
DGEXBC 0
ECMWF 0
ECMWFBC 0
GEMnh 0
GEMnhBC 0
GFS 0
GFS40BC 0
HIRESarw 0
HIRESarwBC 0
HIRESnmm 0
HIRESnmmBC 0
HRRR 0
HRRRBC 0
MOSGuide 0
NAMNest 0
RUC13 0
RUC13BC 0
ShortBlend 0
SREF 0
SREFBC 0
Fcst 0
Official 0
OVERLOAD !!!
ADJECE 0
ADJECEBC 0
ADJECM 0
ADJMAV 0
ADJMAVBC 0
ADJMEN 0
ADJMENBC 0
ADJMET 0
ADJMETBC 0
ADJMEX 0
BCCONSAll 0
CONSMOS 0
BCCONSMOS 0
CONSRaw 0
BCCONSRaw 0
CONSShort 0
GEMnh 0
GEMnhBC 0
GEMreg 0
GEMregBC 0
GFS 0
GFS40BC 0
HIRESarw 0
HRRRBC 0
MOSGuide 0
MOSGuideBC 0
NAM12 0
NAM12BC 0
NamDNG 0
NAMNest 0
SREF 0
SREFBC 0
SuperBlend 0
WModel 0
WPCGuide 0
WPCGuideBC 0
Fcst 0
Official 0
Obs 0
LAPS 0
RTMA 0
Obs/LAPS/RTMA offset (days-hours)
1-24 2-48 3-72 4-96 5-120
6-144 7-168 8-192 9-216
10-240
Curr Obs hours offset
0
Prev Obs hours offset
0
Curr LAPS hours offset
0
Prev LAPS hours offset
0
Curr RTMA hours offset
0
Prev RTMA hours offset
0
Use weighted average?
Yes
No
Go
Stop

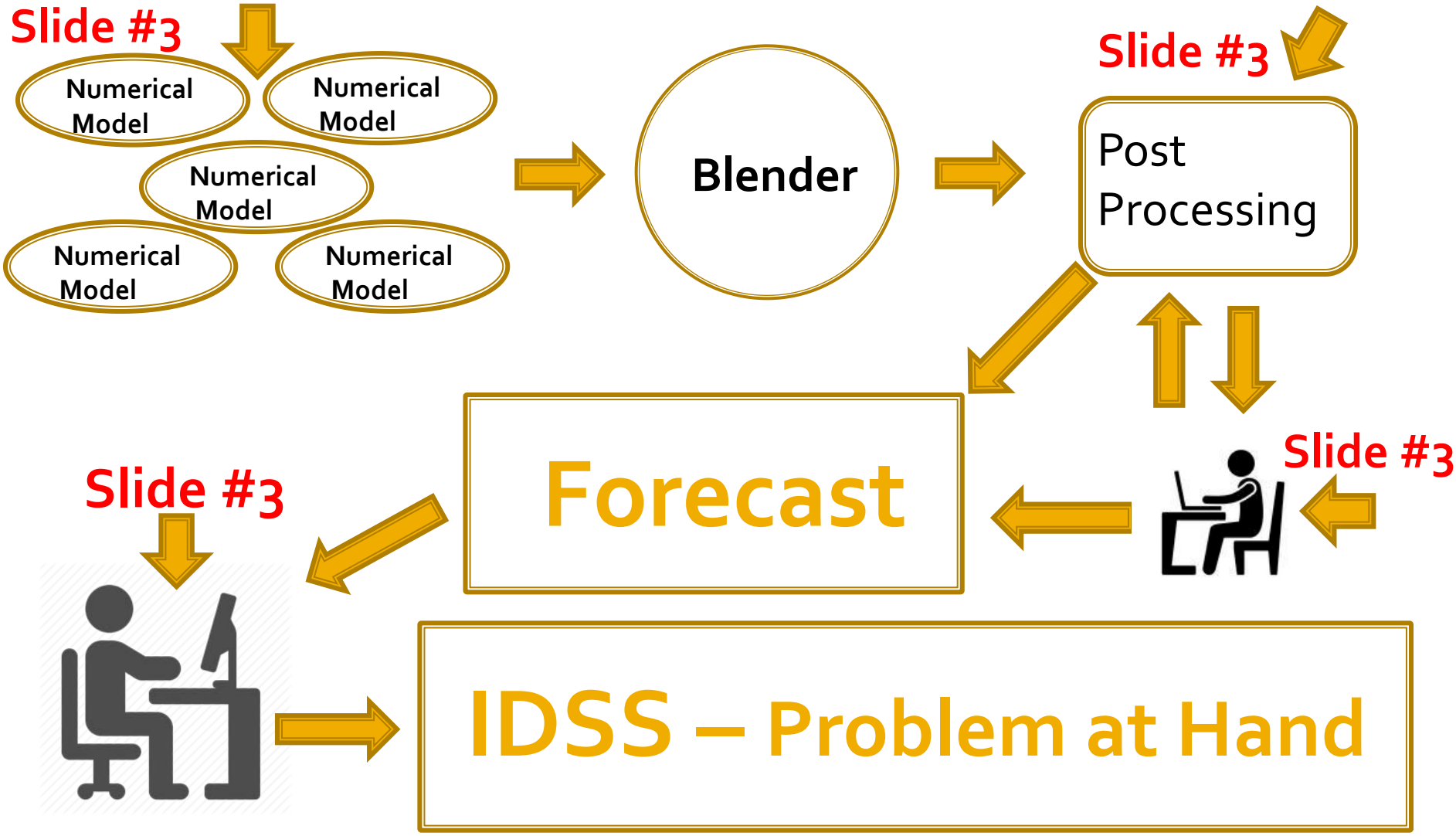
A Paradigm Shift

- Len Snellman – Mother Nature always integrates the equations correctly.
  - Over reliance on the model is akin to meteorological cancer. (1977)
  - This reliance can lead to the 20% human input shrinking to near zero in the 1990s. (1991)
- Data streams outstripped human capability for analysis in the middle 90s.
- **There's more to the forecast than a deterministic grid can represent.**

Blended Approach

- National Blend of Models – National First Guess
- Consistent starting point for forecast – A Blend
  - Static or dynamic based on performance?
- Coordinated and collaborated changes
- Set(s) of algorithms to create derived parameters
- Set(s) of algorithms to incorporate local expertise

Operational Forecasting 2016



Changes in the Data Environment

- Congressional mandate to NOAA – data collection with a private sector partner (satellite) by October 2016
- We already buy some data
  - TAMDAR (aircraft obs - Panasonic)
  - Lightning – Vaisala , EarthNetworks
  - ECMWF
- Implications for weather data sharing – WMO
- Private Sector NWP - Panasonic
- Spectra management/sales
  - Upper Air, DCPs, Hydronets,
  - GOES-R

Questions ?

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Meteorology Career Skill Sets

- Meteorology
  - GS-1340 Requirements
- Communications
  - Written, Verbal, Graphics
- Technology
  - Basic computer skills
  - Basic understanding/appreciation of networks and systems
  - Social media/evolving communication technologies