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# NOAA Welcome

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*Soil Moisture Active Passive Applications Workshop*

*Silver Spring, MD*

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# Outline

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- NOAA Welcome
- Earth System Model Approach for all Applications
- Importance of Land Surface Model in NWS Operational Model Suite
- Summary



# Prediction Requires “Coupling” of Basic Earth “Systems” within Global Numerical Forecast Models



Atmosphere

Ocean



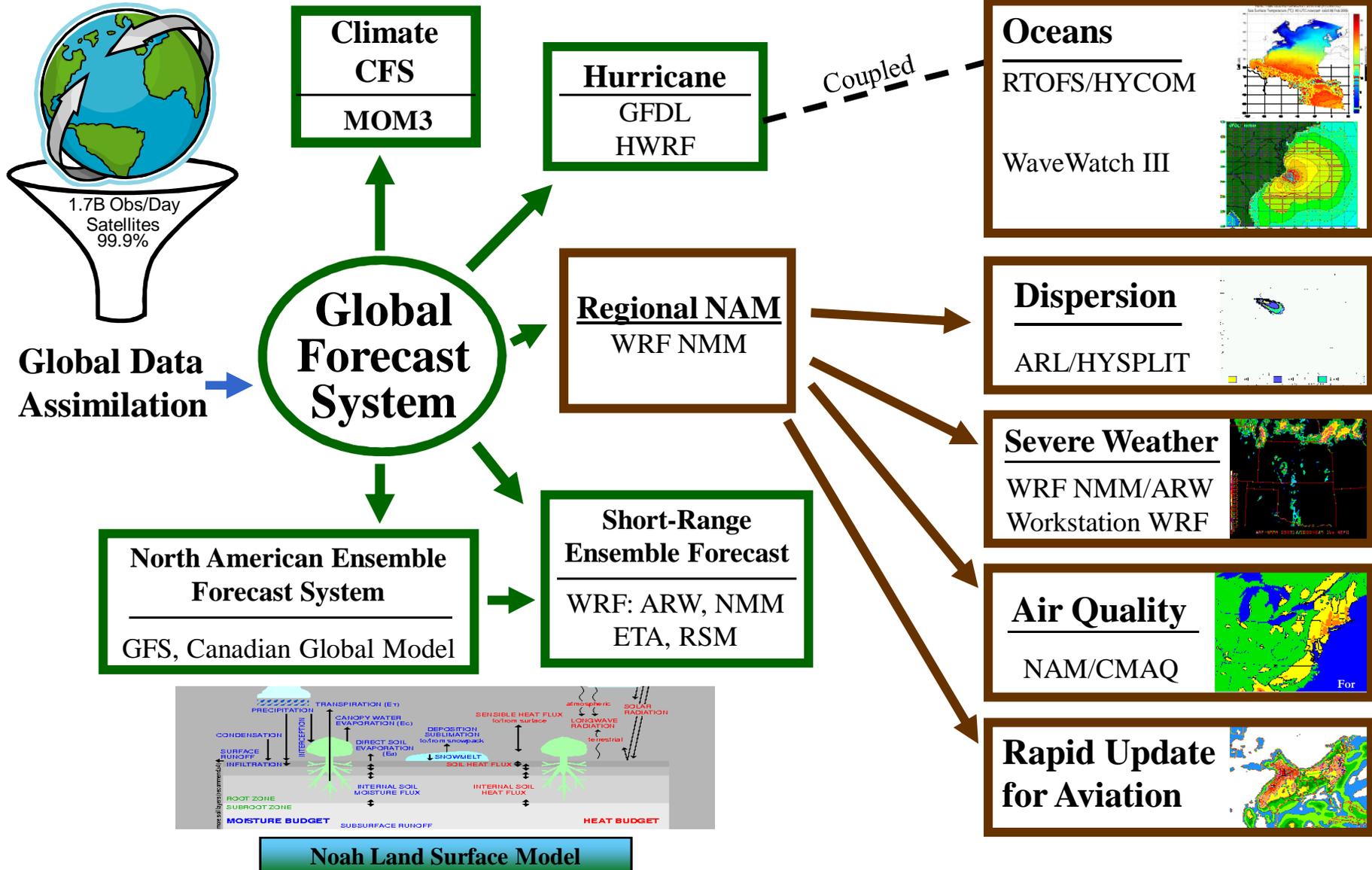
Cryosphere

Land

- Predictions Driven by Global Observing Systems
- Real-time operations require world’s largest computers



# NOAA Model Production Suite



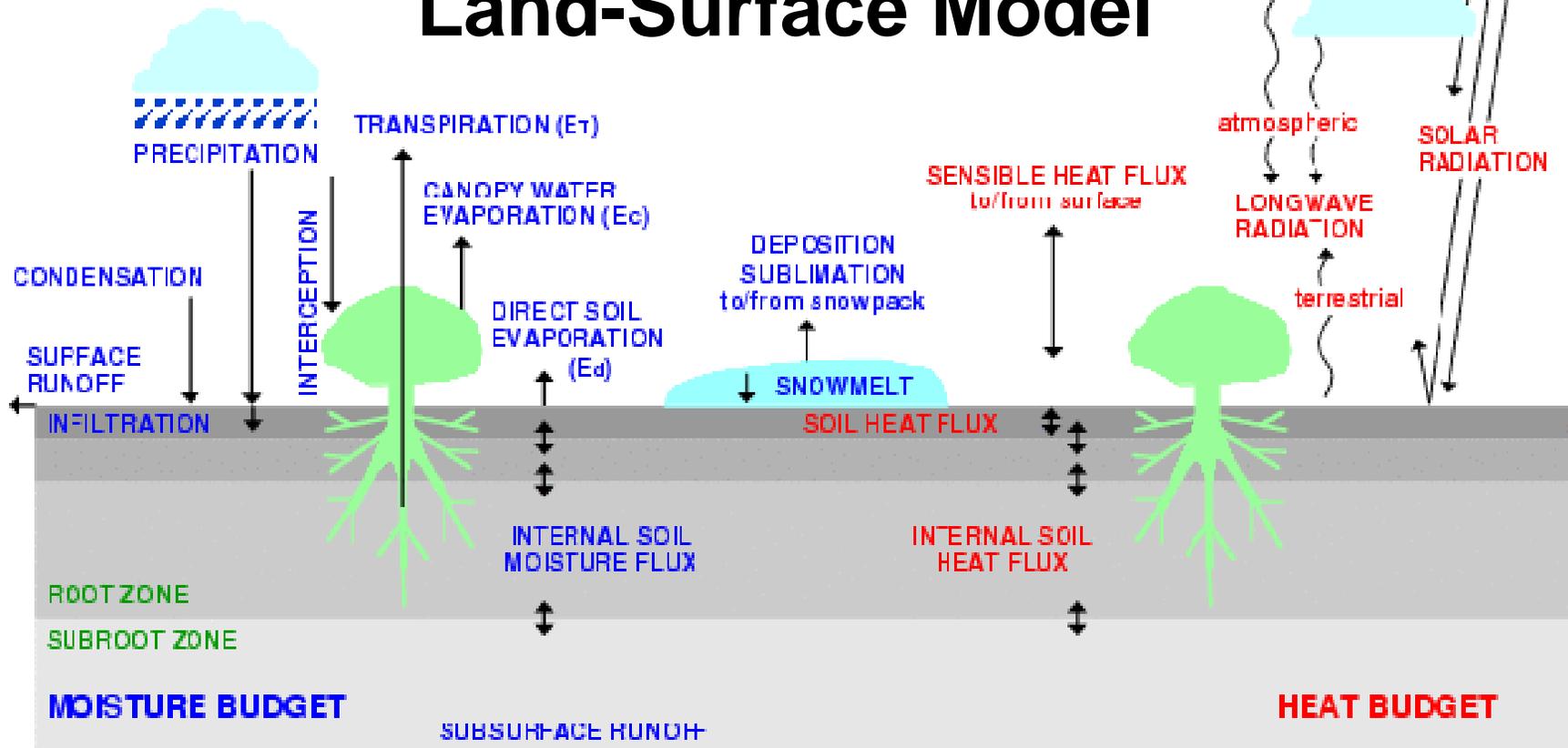
**ATMOSPHERIC FORCING (near surface)**

- PRECIPITATION 
- TEMPERATURE 
- HUMIDITY 
- SURFACE PRESSURE 
- WIND 

**RADIATION FORCING (at surface)**

- DOWNWARD SOLAR
- DOWNWARD LONGWAVE

# Community Noah Land-Surface Model



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|------------------------|------------------|------------|---------------------------|--------------|
| <b>STATE VARIABLES</b> |                  |            | <b>SURFACE PARAMETERS</b> |              |
| SKIN TEMPERATURE       | SOIL TEMPERATURE | SNOW DEPTH | VEGETATION TYPE           | ROUGHNESS    |
| CANOPY WATER           | SOIL WATER       | SNOW WATER | GREEN VEGETATION FRACTION | ALBEDO       |
|                        | SOIL ICE         |            | SOIL TEXTURE              | SLOPE FACTOR |

<ftp://ftp.emc.ncep.noaa.gov/mmb/gcp/das/noahlsm>



# Summary

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- Current operational model suite heavily influenced by land-surface model – Noah
- Building towards full implementation of the community-based Land Information System (LIS)
- Success of LIS in operational model suite:
  - dependent on the ongoing community effort
  - Dependent on the full utilization of satellite data (including SMAP)
- Other possible SMAP applications
  - Soil wetness – irrigation
  - Gridded flash flood guidance
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