

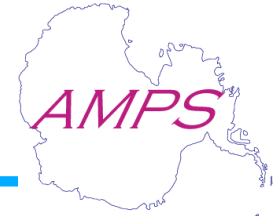
Improvements to AMPS Processing for Enhanced User Support

Michael G. Duda and Kevin W. Manning

Mesoscale and Microscale Meteorology Division, NCAR
Boulder, Colorado

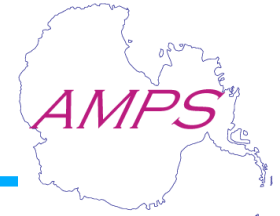
The Antarctic Meteorological Observation, Modeling,
and Forecasting Workshop
June 13-15, 2006

Motivation



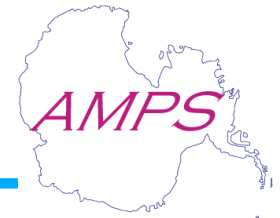
- Highlight several examples of customized AMPS user support
 - Most users may not be aware of support that is provided to other AMPS users; may learn of other ways to use AMPS
 - We are interested in discussing ways that AMPS could better address your specific needs
- Briefly describe improvements to AMPS that enable such support
 - Modularity and configurability

Outline



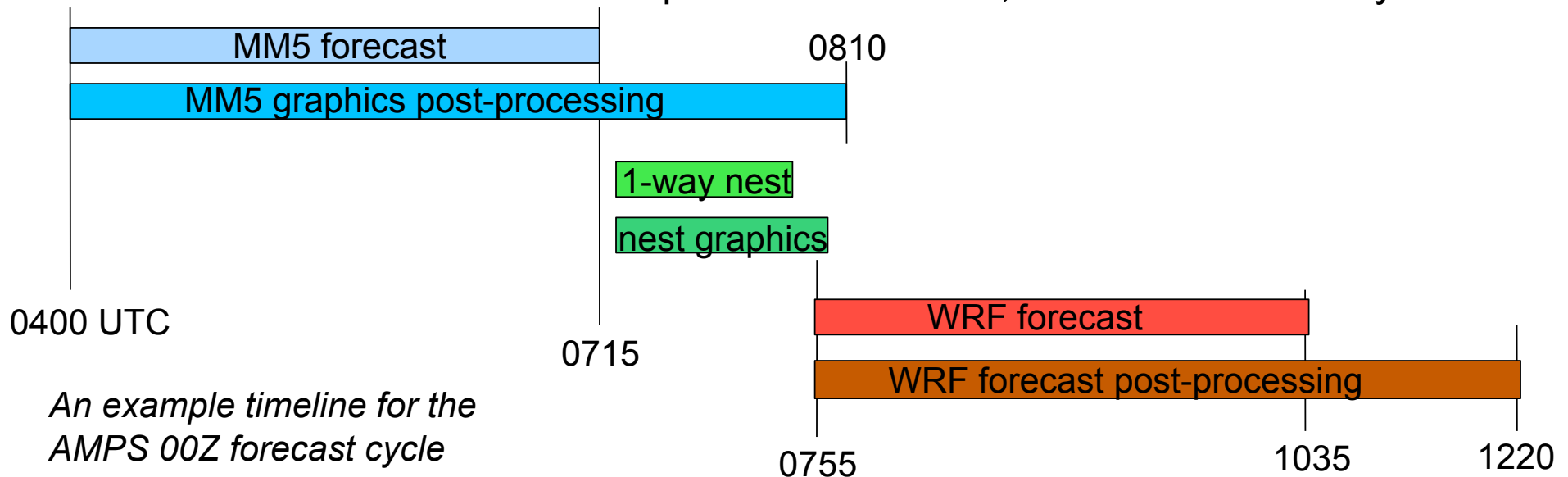
- One-way nesting capability
- E-mail product distribution
- Special product suite packaging
- New web page generation mechanism
- **POTENTIAL SUPPORT: Antarctic-IDD product distribution**

One-way nesting “on-demand”



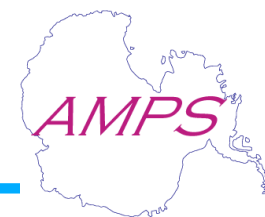
Needed to provide higher resolution over areas of temporary interest without delaying main AMPS run

- 1-way nests use output from parent nests, but do not give feedback – can be run any time after main AMPS run
- Independence means that nests can be added and removed relatively easily
- Given a terrain file and output from main run, can launch a 1-way nest

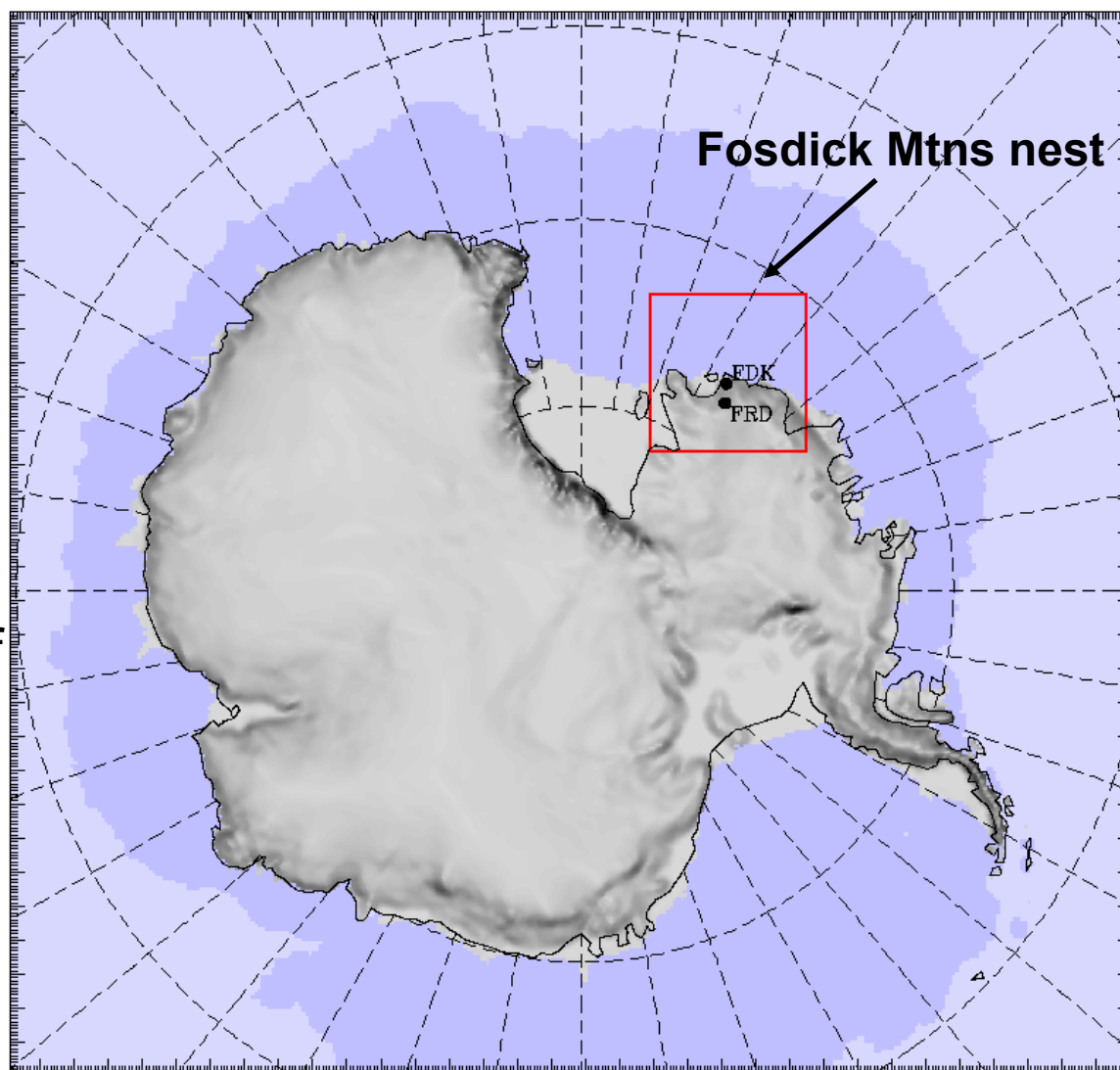


An example timeline for the AMPS 00Z forecast cycle

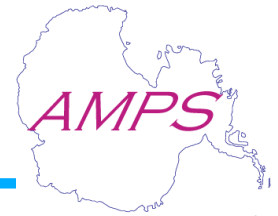
Fosdick Mountains nest



- Run in support of U.S. field operations around FDK and FRD
- 5-km grid spacing
- 181x181 grid points
- Required ~30 mins of wallclock time for 48-h forecast to run (w/ 48 CPUs)



S. African Weather Service nests



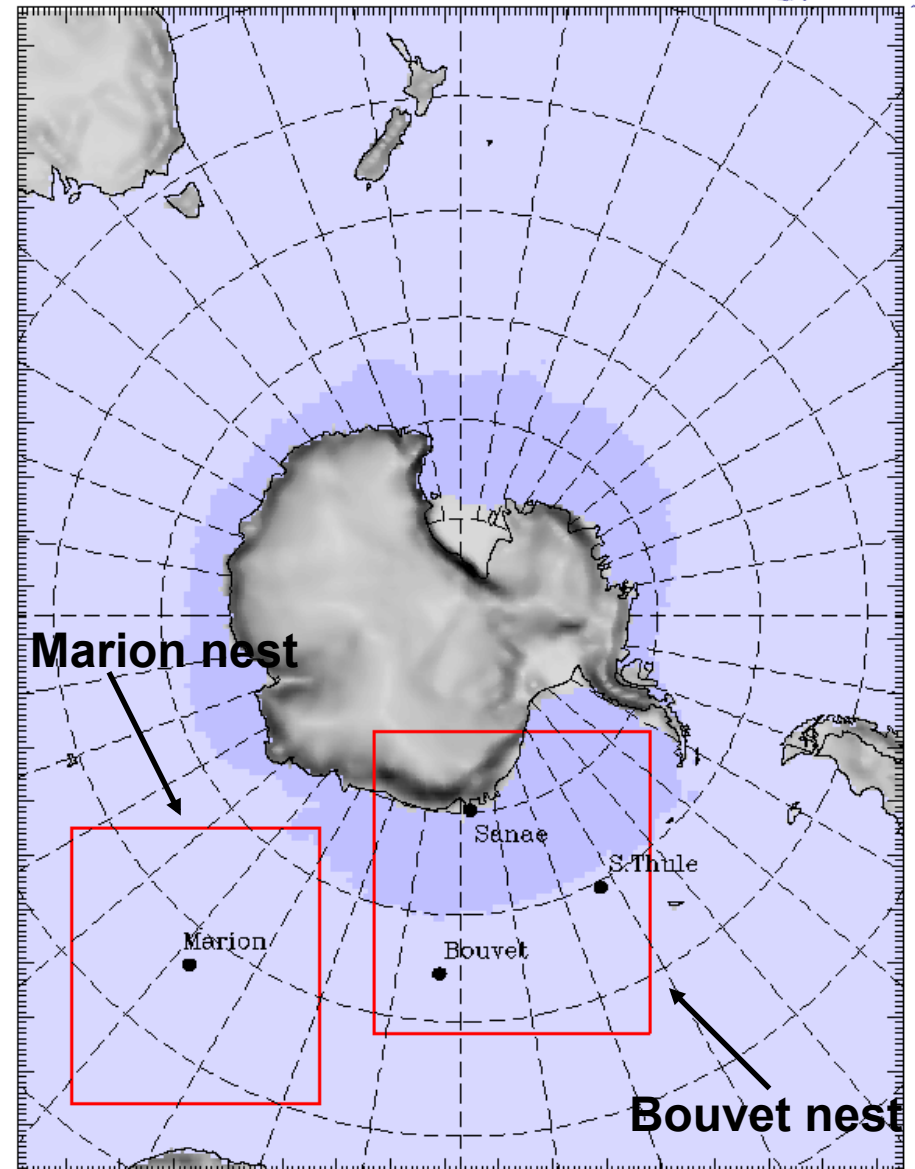
Both nest used 15-km spacing

Bouvet Is. nest

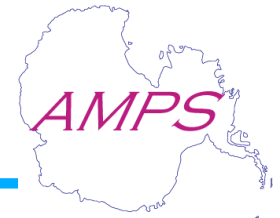
- 201x221 grid points
- Support for Agulhas trip to replenish station and deploy buoys

Marion Is. nest

- 181x201 grid points
- Support for Agulhas trip to upgrade AWS on Marion Is.

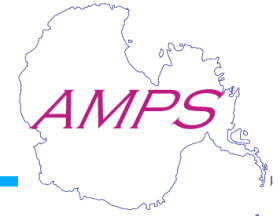


Additions to AMPS for 1-way nests



- An independent set of scripts take a terrain file, output from the main AMPS run, and a few other files; begin to run nest
- Post-processing proceeds in nearly same way as with main run
 - A default set of products are made for a nest, unless otherwise configured – no need to create new plot specifications!
 - In future, we hope to merge post-processing for main run and 1-way nests – more shared code for easier system maintenance
- Coming soon: one-way nesting “on-demand” for WRF AMPS?

E-mail product distribution



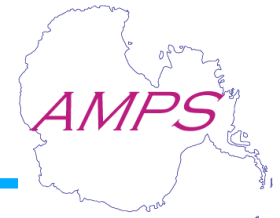
Provides products to users with limited bandwidth, or for whom it is inconvenient to retrieve products through the AMPS web page

- Not feasible for mass distribution of AMPS products – would overburden NCAR's e-mail servers
- Good for small, fixed subset of products

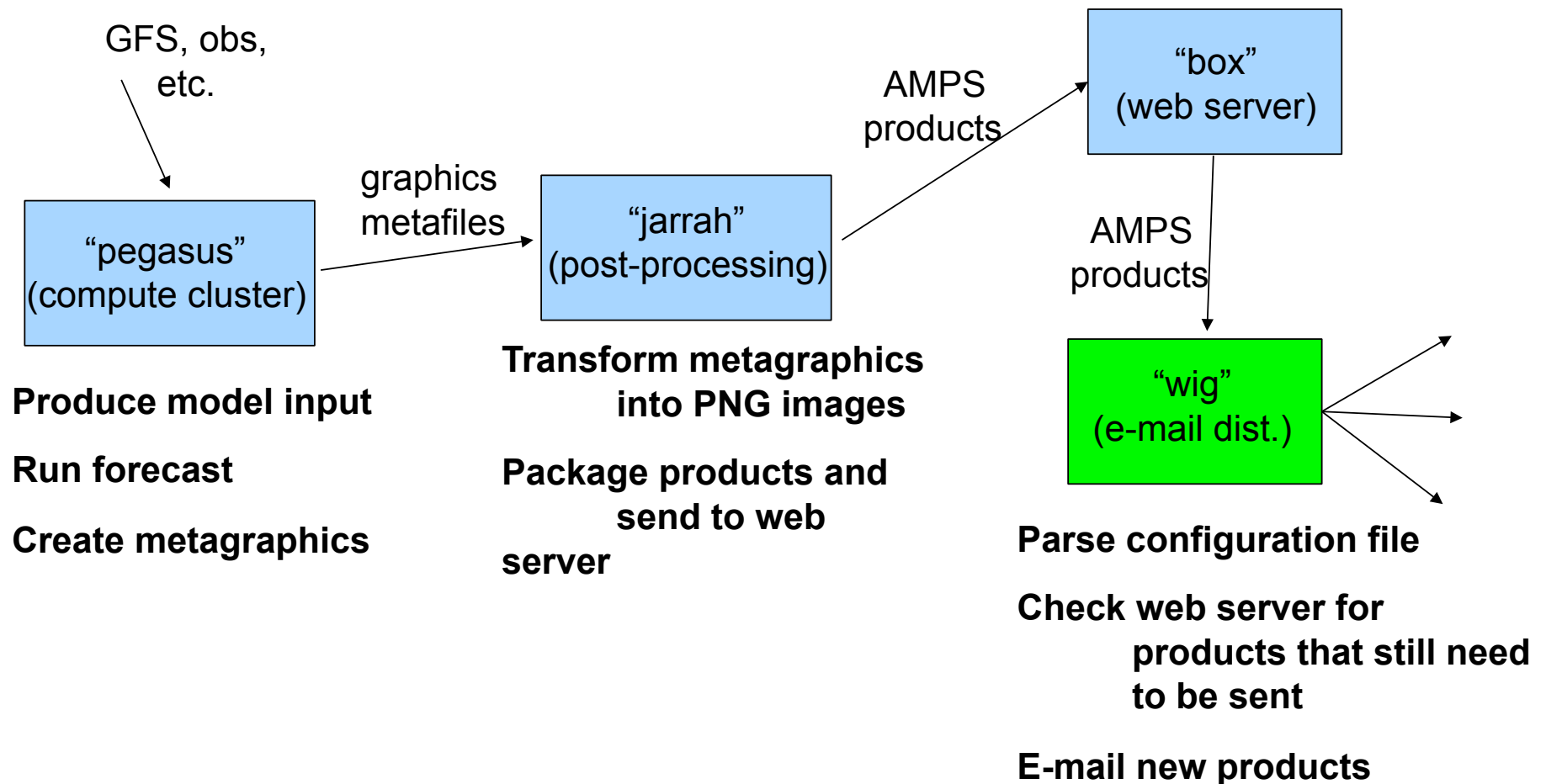
Key users

- Neumayer Station: Various horizontal plots and several meteograms
- RV Polarstern: Received small subset of AMPS plots from 00Z initialized runs only

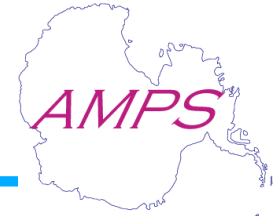
E-mail product distribution



How does the e-mail distribution system work?

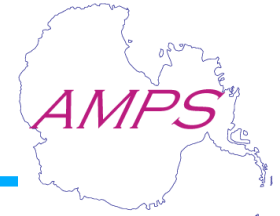


Advantages of new e-mail system



- Config file designed to easily handle complex subsets of AMPS products
- Product distribution separated from product creation
- Distribution can be easily migrated to a different machine in case of machine upgrades/downtime/ etc.
- Provides a single approach to sending products from MM5 and WRF – get products directly from web server

Special product packages



Several users have requested a suite of AMPS products available in a single .tar file or directory

SPAWAR

- Create a directory on web server that contains subset of plots

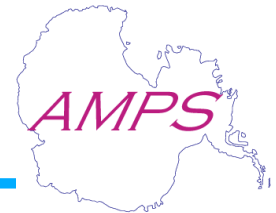
Australian Bureau of Meteorology

- ASCII time series data (output at every time step) in .tar file

British Antarctic Survey

- Various horizontal plots, time series plots, and meteograms
 - Similar to e-mail distribution – scripts get plots directly from web server
 - Periodically check for new plots to add to .tar file
 - When all plots added (or when we assume run has failed), send tar file to web server

Improved Web Page Generation



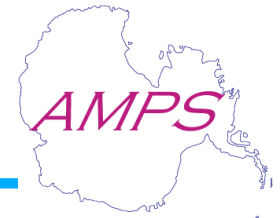
Problem: Updating the AMPS web page was a tedious and error-prone task

Solution: Create system that figures out which products are available for each domain/nest, then generate appropriate HTML and JavaScript

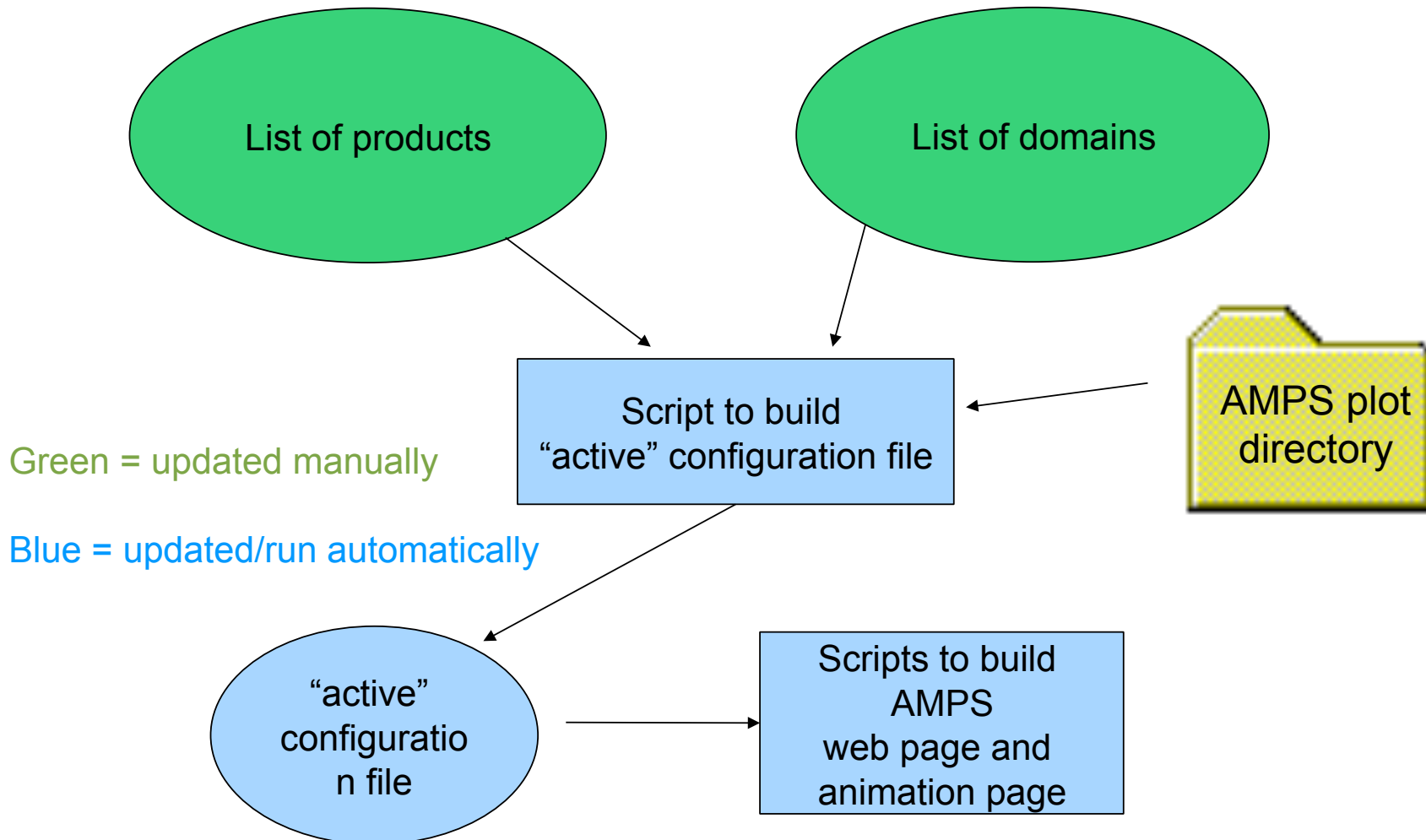
Forecast Hr	Model Selection	Initial Time	Field
48 h ▾	20 km Ross-Beardmore ▾	2006060612 ▾	<input type="radio"/> SFC <input type="radio"/> Sfc RH <input type="radio"/> Precip <input type="radio"/> Cloud base <input type="radio"/> Cross sections (none) ▾
<input type="radio"/> Animations <input type="radio"/> AMPS Info	<input type="radio"/> Full <input type="radio"/> New <input checked="" type="radio"/> Scaled	Go Left Go Right	Upper air ▾ Soundings ▾ Obs (none) ▾ Tables ▾ <input checked="" type="radio"/> PseudoSat <input type="radio"/> Sfc wind <input type="radio"/> Sea ice Time series ▾ Meteograms ▾

For each domain, there must exist code to generate the contents of every other menu and to decide which Field buttons are valid.

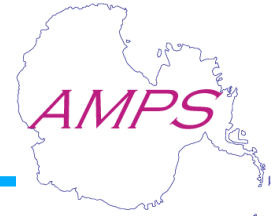
Automated Web Page Updates



How is the web page updated using the new system?



Antarctic-IDD plot distribution?



- AMPS plot products could be distributed over IDD, in addition to GRIB files
 - Could this be helpful to MacWX or SSCC or others?
 - Could be a possible alternative to OfflineExplorer/ Elena approach at McMurdo

Questions?