WCRP REVIEW
Modelling in WCRP

- Modelling is **the** fundamental technology in WCRP for delivering advances in climate research:

  - Models enable us to understand **how** the climate system works
  - Models enable us understand **why** climate is changing
  - Models enable us to '**see into the future**' and take action

Where is leadership in model development in WCRP?

- WGNE was established for '*fostering the development of atmospheric circulation models for use in weather, climate, water and environmental prediction on all time scales and diagnosing and resolving shortcomings*'
- WGCM was established to '*foster the development and review of coupled climate models'.*
- Do 67 modelling projects in WCRP tell us that we have something wrong? Should these modelling projects just be part of delivering WCRP science?

Is there a need now to distinguish between science for model development and modelling for science?

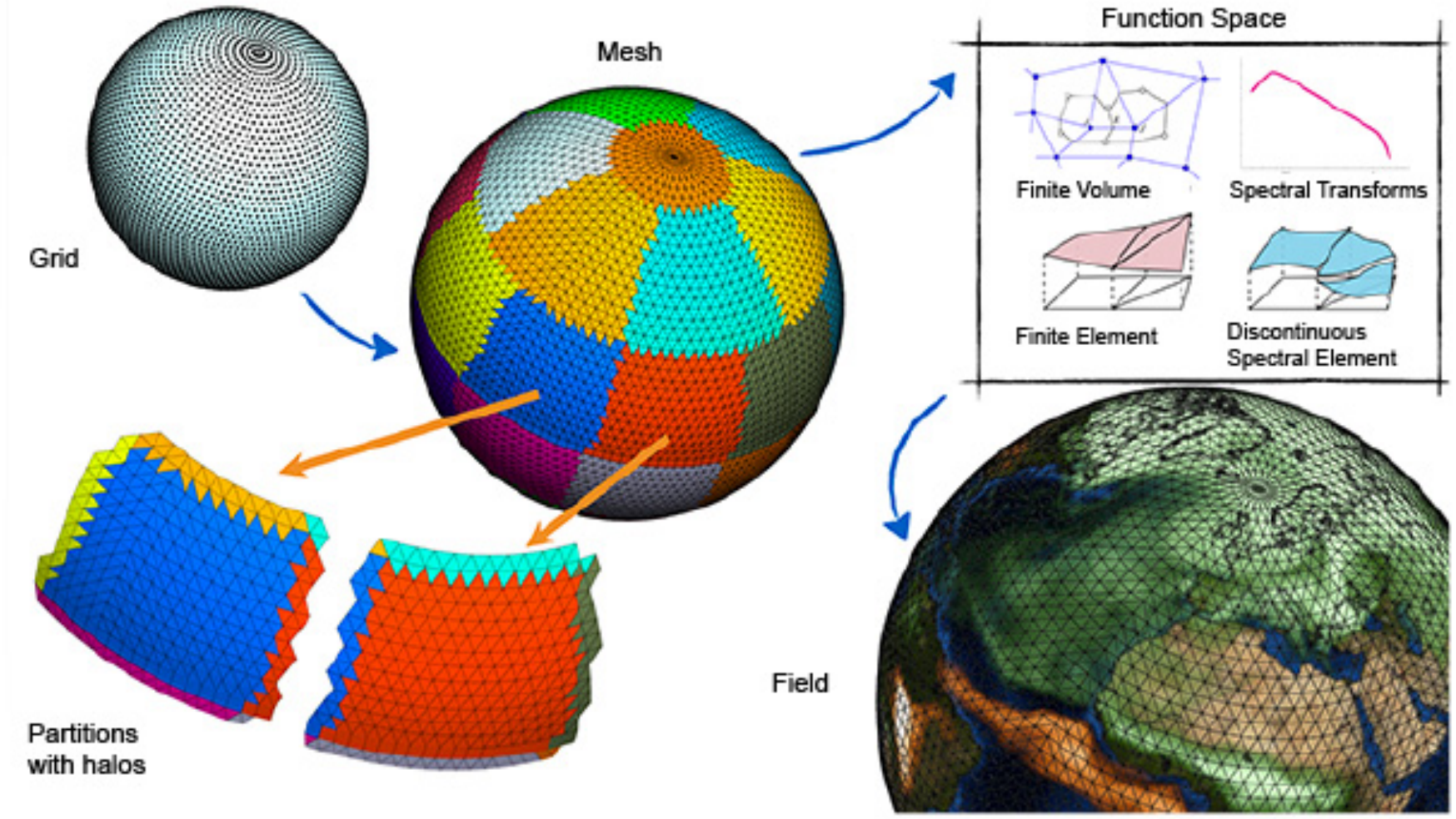
The wise man built his house upon the rock
And the rain came tumbling down

Oh, the rain came down
And the floods came up
And the wise man's house stood firm.

The foolish man built his house upon the sand
And the rain came tumbling down

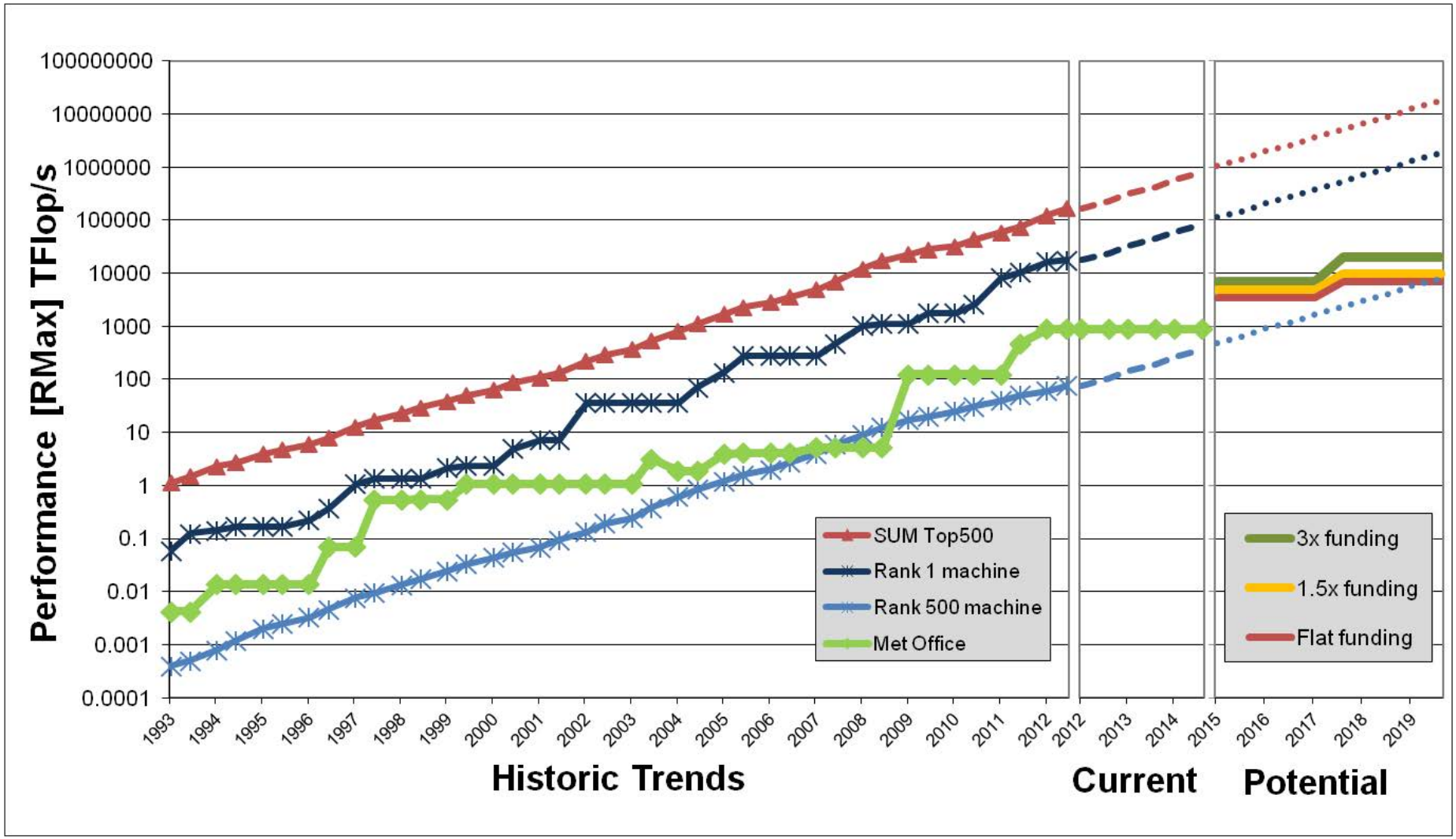
Oh, the rain came down
And the floods came up
And the foolish man's house went "splat!"

Future Challenges: Next Generation Codes and Exascale Computing

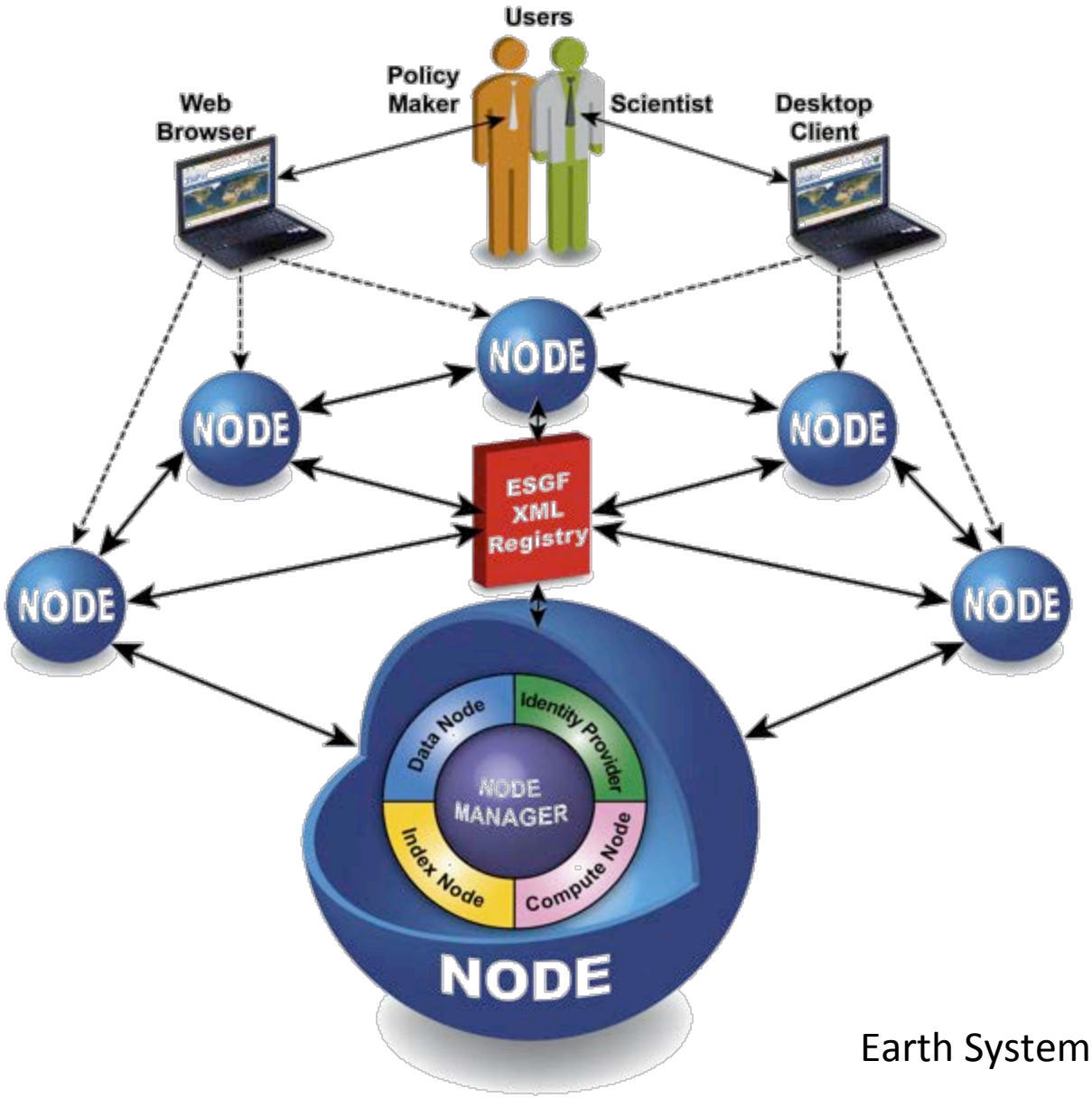


Courtesy: ECMWF

Future Challenges: Continuous Investments in Supercomputing



Who is looking after Data Archiving and Analysis of Multi-model Ensembles?



Earth System Grid Federation

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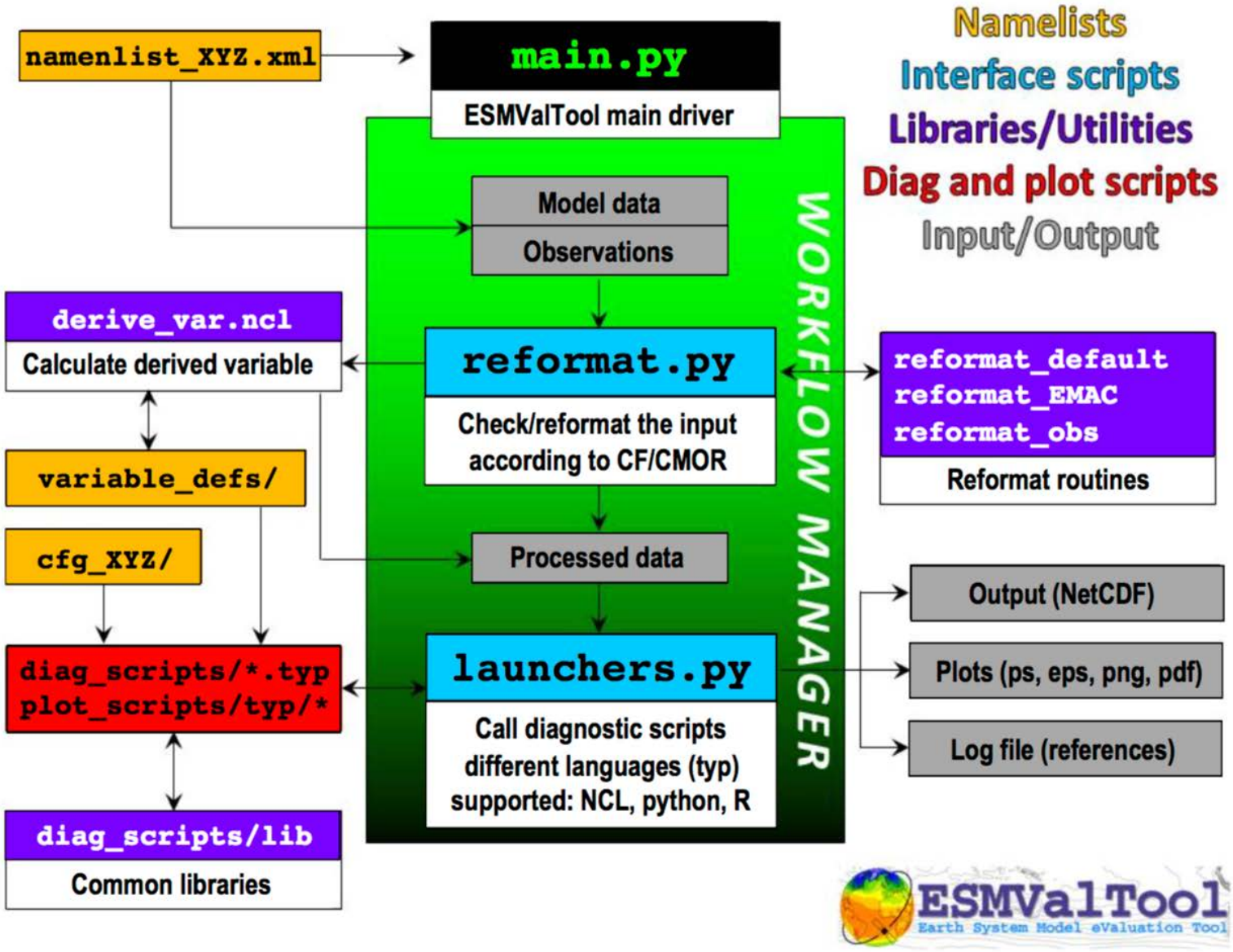

- How can WCRP help to sustain Tier 0 capabilities in climate modelling, predictions and projections?

- Should model and data software development be more prominent in WCRP?

- How should WCRP re-invigorate model development and help the community eliminate long-term systematic errors?

- Should WCRP be working more actively with computing and data system providers?

- Do we need a major international initiative – a 'field experiment' like TOGA COARE - to accelerate progress?

European Programme on Extremes of Weather, Climate and Computing (EPECC)