Important Requirements (1)

1. Improve understanding: Agencies/countries must work together and support research based on societal needs, not on their own agenda
2. Use the successful weather-climate observation and prediction systems as the foundation for the next generation Earth system monitoring , analysis and prediction system.
3. Provide detailed regional information but recognize that these require global models that can represent high resolution processes such as convection, hurricanes, surface hydrology.

Important Requirements (2)

4. Communicate the excitement of the problem to a new generation of natural and social scientists, including scientists in emerging countries.
5. Maintain and expand the global observing system.
6. Provide the supercomputing capability needed to resolve key high-resolution processes and treat complexity in Earth system models.

Important Requirements (3)

7. Develop awareness and communicate information to society through a dialogue between scientists, decision-makers and the public.

8. This will require a real cultural revolution:
   - Scientists must focus on societal questions
   - The development of environmental knowledge centers requires a cultural shift towards interdisciplinarity.

What we need

- The development of an A[illegible] internationally-funded infrastructure, and specifically

(1) **human resources** that conduct **innovative** trans-and cross disciplinary research across all domains (social and natural sciences...

(2) a multi-national **supercomputing capability** that allows the development of global models at typically 1 km resolution;

(3) Earth system models that are adapted to **massively parallel** multi-petaflop machines (>100,000 processors)

(4) coherent observations, **data systems**, and shared standards that allow easy exchanges of data

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