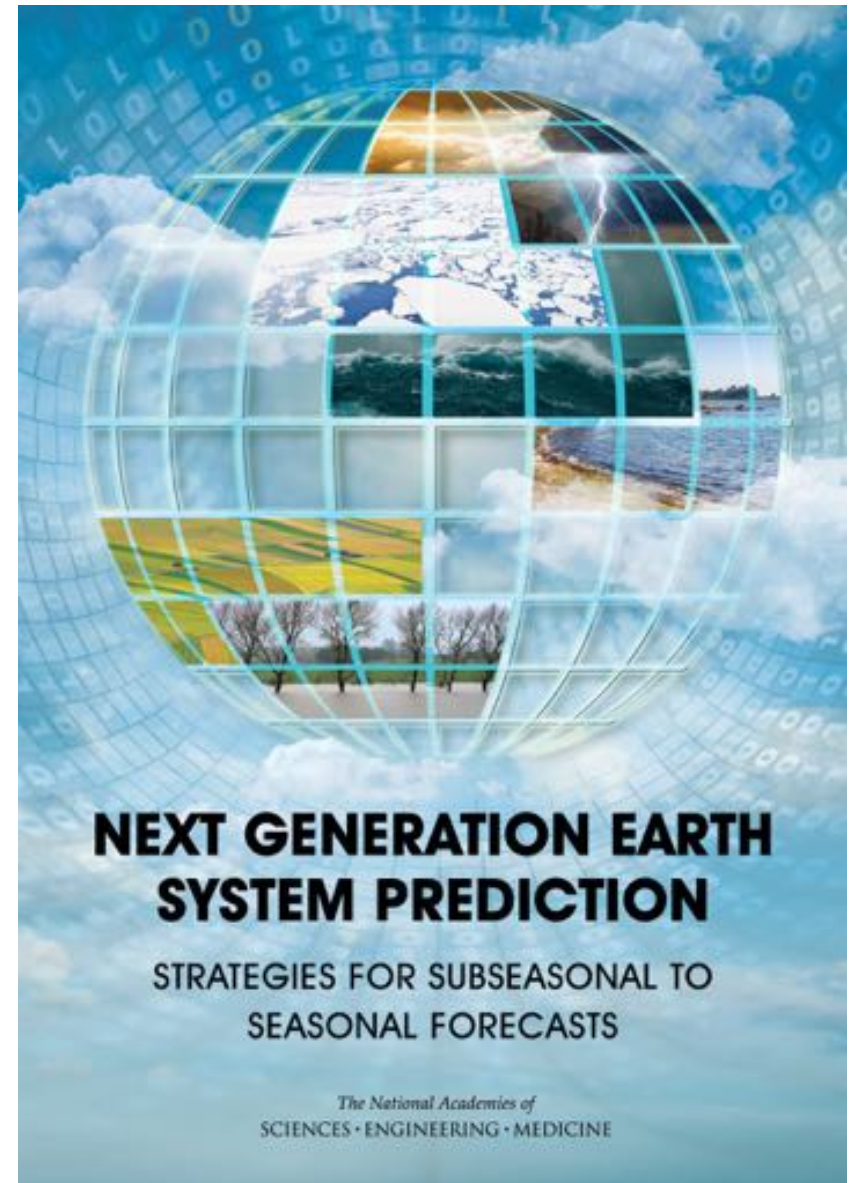


Next Generation Earth System Prediction: Strategies for Subseasonal to Seasonal Forecasts

**Raymond Ban (Committee
Chair)**

Ban and Associates, LLC



The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Forecast Timescales

- Weather 0-14 Days
- **Subseasonal 2-12 Weeks**
- **Seasonal 3-12 Months**
- Interannual 1 year - Decade
- Climate Decades - Centuries



**Subseasonal
to Seasonal
(S2S)
2 weeks -12
months**

Why This Study?

- Sponsored by Office of Naval Research, Heising-Simons Foundation, NASA, and NAS Arthur L. Day Fund

Task:

- To describe a strategy to increase the nation's capacity for S2S forecasting
- To develop a 10 year scientific research agenda to accelerate progress

Committee Roster

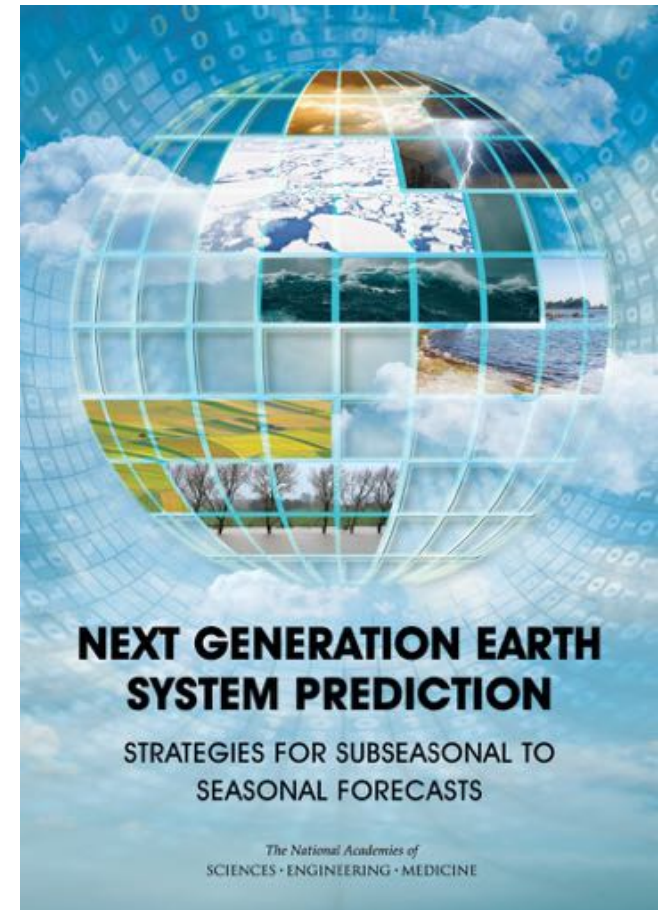
- **Raymond J. Ban (Chair)**, Ban and Associates, LLC
- **Cecilia Bitz**, University of Washington
- **Andy Brown**, UK Met Office
- **Eric Chassignet**, Florida State University
- **John A. Dutton**, Prescient Weather, Ltd.
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- **Daryl Kleist**, University of Maryland, College Park
- **Pierre F.J. Lermusiaux**, Massachusetts Institute of Technology
- **Hai Lin**, Environment Canada
- **Laura Myers**, University of Alabama
- **Julie Pullen**, Stevens Institute of Technology
- **Scott Sandgathe**, University of Washington
- **Mark Shafer**, The University of Oklahoma
- **Duane Waliser**, Jet Propulsion Laboratory
- **Chidong Zhang**, University of Miami

Committee held five in-person meetings, spoke with dozens of researchers and users
Report reviewed by 12 outside experts

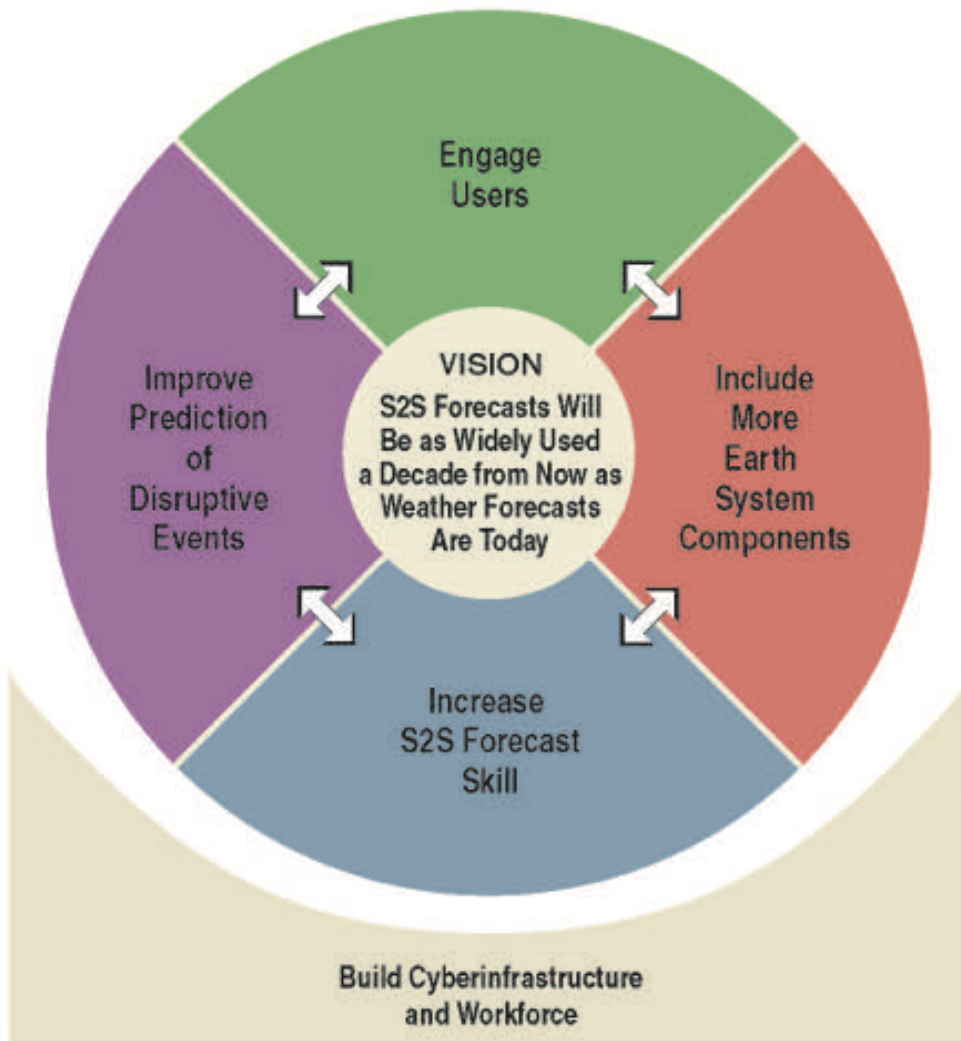
The Committee's Vision

S2S forecasts will be as widely used a decade from now as weather forecasts are today

- Fulfilling this vision will take sustained effort and investment

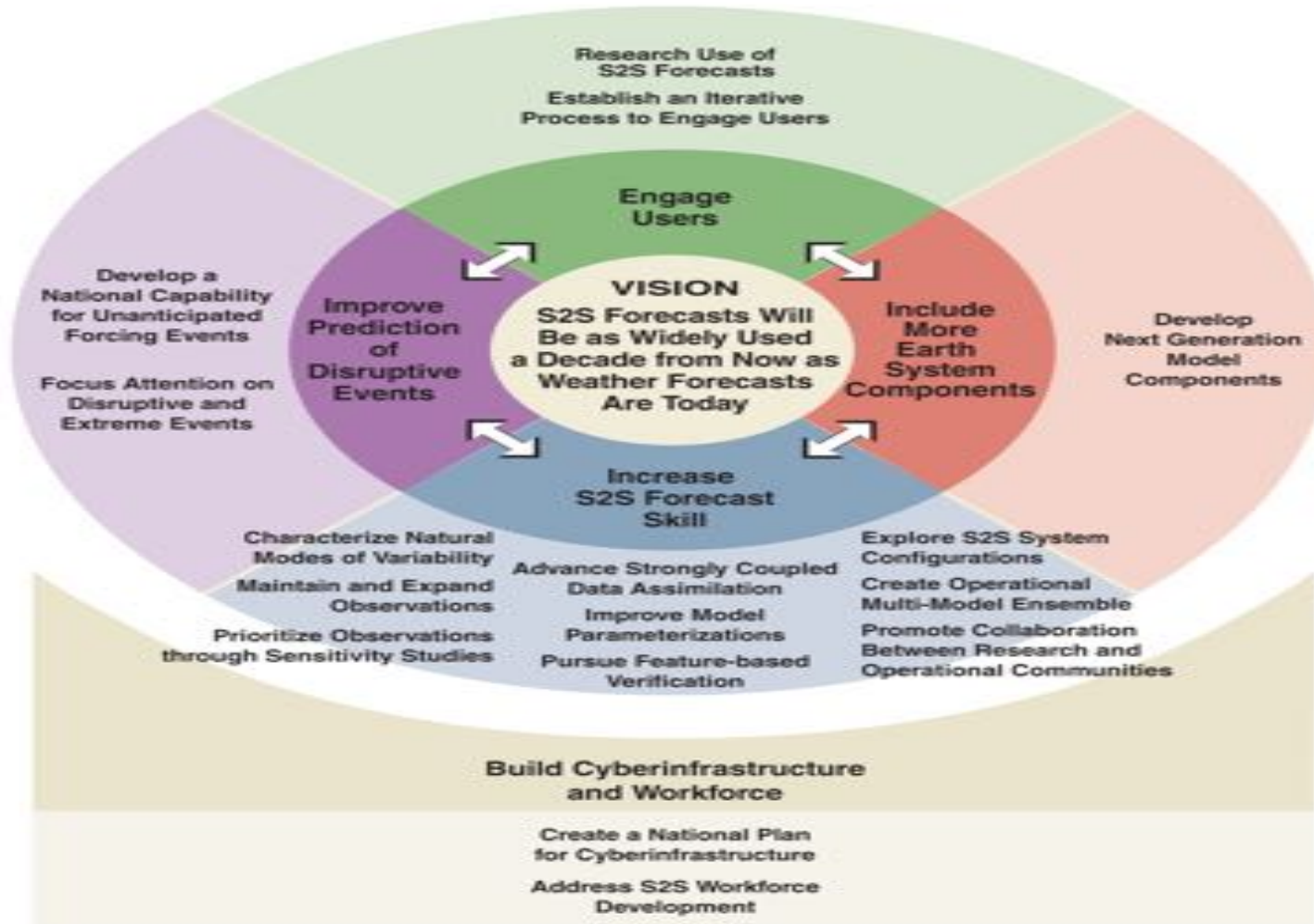


Fulfilling the Vision: Research Strategies



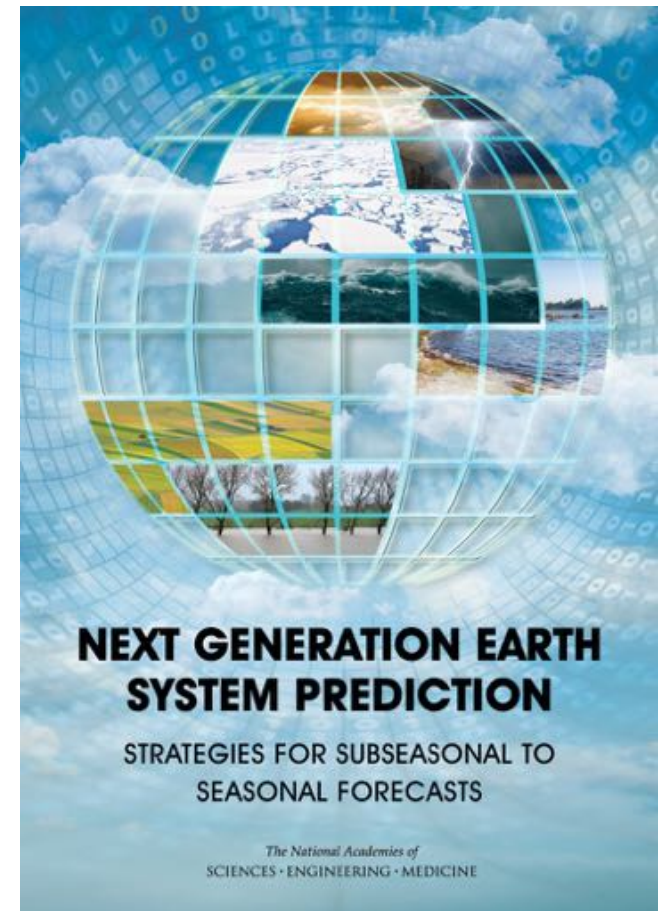
1. Engage Users
2. Increase S2S Forecast Skill
3. Improve Prediction of Disruptive Events
4. Include More Earth System Components

Fulfilling the Vision: Recommendations



Bringing It All Together

- Vision and research agenda are bold
- **S2S forecasts will be as widely used a decade from now as weather forecasts are today**
- Fulfilling this vision will take sustained effort and investment



Acknowledgments

- Sponsors
- Committee
- Reviewers
- Academies Staff
- Numerous colleagues consulted during study

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