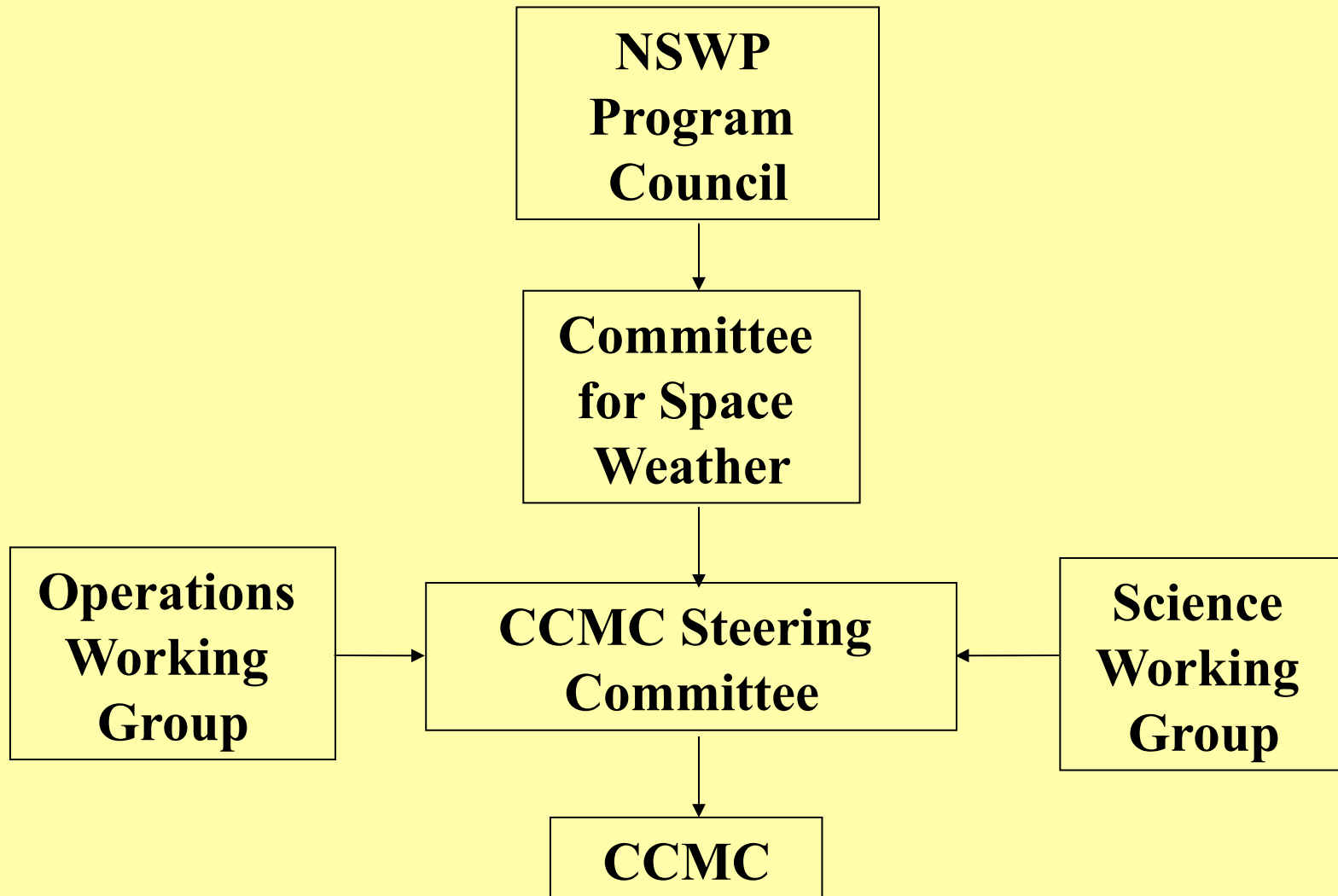


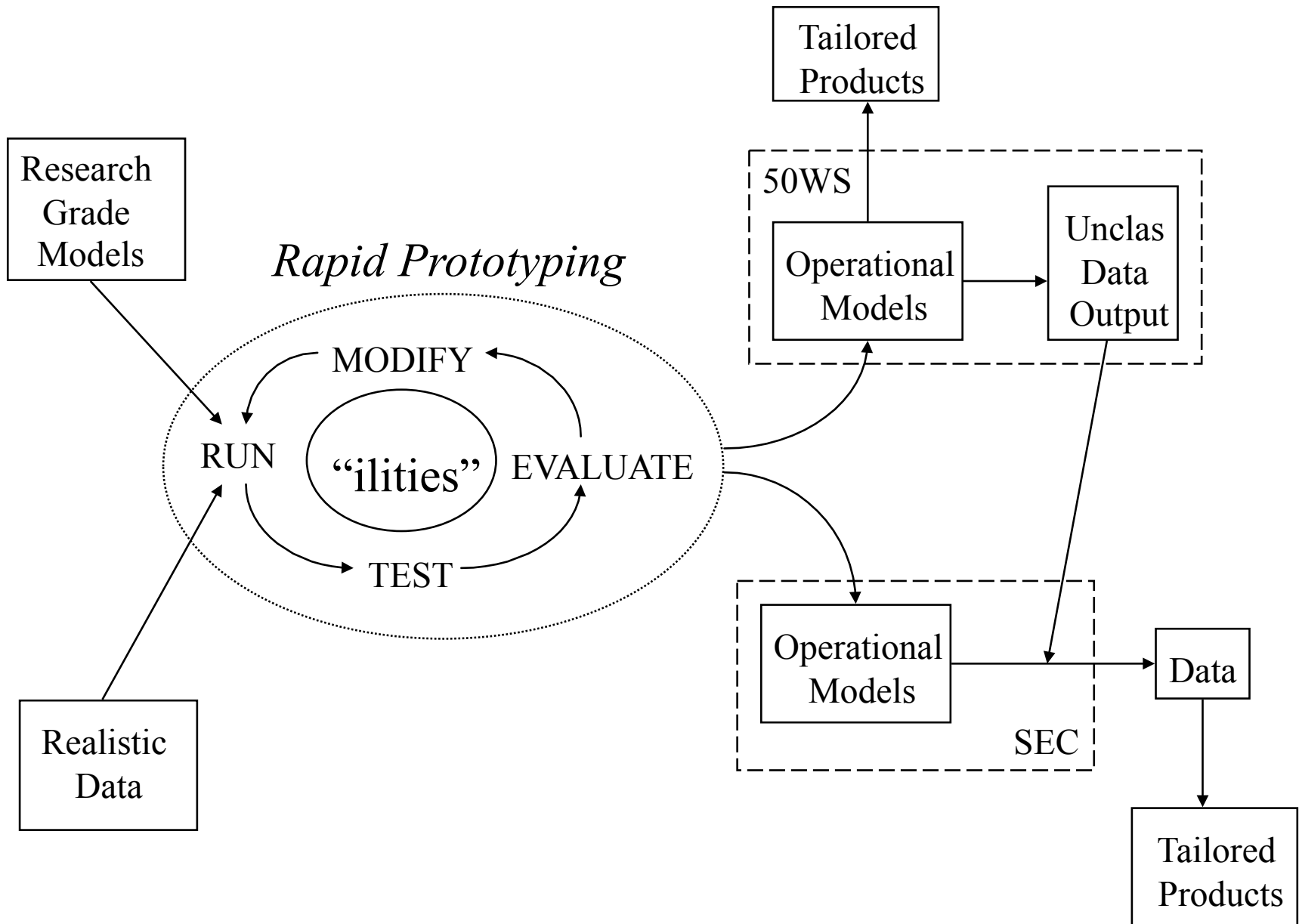
NSF and CCMC

The Early Days

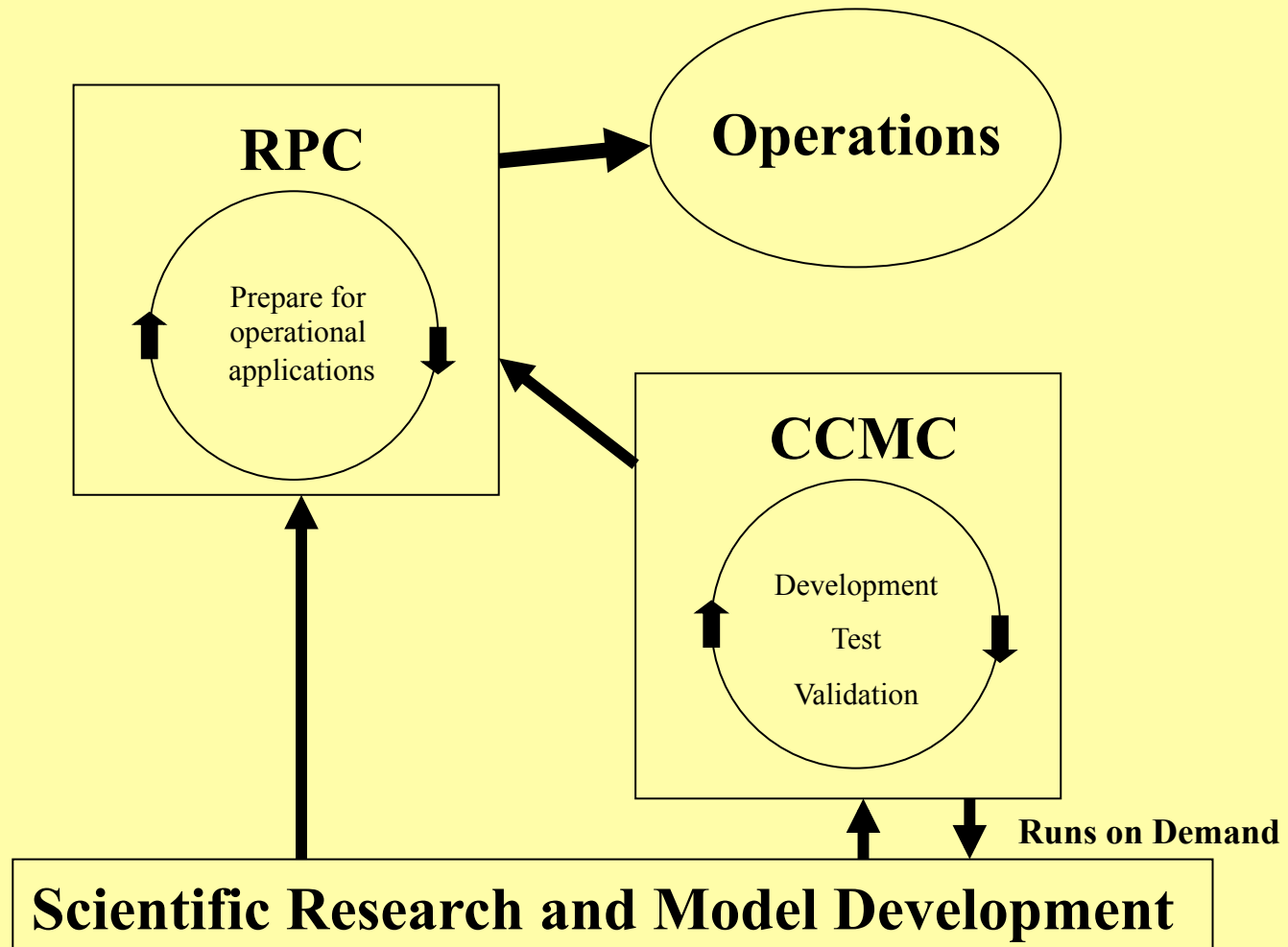
- **Participation in multi-agency working group to create the CCMC**
- **Contributed to the development of the CCMC Concept of Operations**
- **Membership on the CCMC Steering Committee**
- **Continued funding for focused activities supporting the research community**

CCMC Chain of Command





Transitioning Models to Operations



Things we got wrong

- **The internet has made enormous amounts of research results easily accessible**
- **Models and data need not be strictly “operational” to be of use to operations**
- **Multiple rapid prototyping circles instead of just one.**
- **Results obtained during the rapid prototyping process could be used to inform operational products.**

These offer opportunities for research to benefit operations in ways that were not anticipated many years ago

Comments on R2O

- **The research community can both contribute to and benefit from enabling transition of research results to operations**
- **The internet has improved the probability of transferring research into operations**
 - $P_n = 1/C_1 \times 1/C_2 \times 1/C_3 \times \dots \times 1/C_i$, where C_i is the difficulty in demonstrating accuracy, reliability, availability, etc.
 - **The P for many research models has increased**
- **The easy and reliable access to information has created a valuable resource of quasi-operational data and model results**
- **Education and training is vital to getting the most out of available information**
- **The CCMC has proven to be an excellent clearinghouse for such information**

NSF supports space weather research and operations; support for operations is done in the context of broader impacts:

- **Make data available in a timely manner by means of databases, digital libraries, or other venues such as CD-ROMs.**
- **Demonstrate the linkage between discovery and societal benefit by providing specific examples and explanations regarding the potential application of research and education results.**
- **Partner with academic scientists, staff at federal agencies and with the private sector on both technological and scientific projects to integrate research into broader programs and activities of national interest.**

NSF and CCMC

Going Forward

- **CCMC has demonstrated excellent support to the research community**
- **CCMC remains the primary means by which NSF contributes to the transitioning of research to space weather operations**
- **The research community can contribute and benefit from enabling transition of research results to operations**
- **The easy and reliable access to information has created a valuable resource of quasi-operational data and model results**
- **NSF remains committed to ensuring continued success of CCMC and sustainment of its support for the research community**
- **Space weather educational activities may be an area of growing NSF involvement**
- **Competition for funding among various space weather related activities requires a careful review of NSF investments**