


CLIMATE PROCESS TEAMS

Ten tips for building an effective climate process team (CPT) and improving the likelihood that a new parameterization or metric will be integrated into national modeling center models.

1. Think process not phenomenon. The concept should be focused, ready to implement, and fill a compelling modeling need that will generate interest from the modeling centers.
2. Ensure that data and analysis from multiple prior process studies is available for informing model validation and testing.
3. Build a compatible team of the right size. Too many divergent ideas will inhibit progress, while too few will reduce creativity.
4. Recognize that integrating a new parameterization into existing model center code will require the support of management and also resources.
5. Plan for more communications activity than seems warranted (monthly telecons and at least yearly in person meetings). No new metric or scheme will be incorporated into a modeling center code without strong interest from the centers, and that interest stems from being part of the development process. Furthermore, it will take time and communication to bridge gaps and develop trust between observational, theoretical, and modeling communities that will ultimately lead to improving the fidelity with which models represent a process.
6. Bringing together multiple modeling centers with differing priorities can accelerate development even if, or perhaps when, the centers ultimately move in different directions on the final incorporation of a new scheme.
7. Publicize, support, and leverage the CPT as an excellent post-doctoral opportunity to attract highly qualified post-docs. They may move into positions at modeling centers thus providing long-term impact and knowledge transfer, or change their career paths to consider more applied work as a result of the CPT.
8. Identify early low hanging fruit that can be used to excite and engage the modeling centers and broader community about the CPT concept.
9. Include the broader community through holding workshops to leverage their efforts and ideas, and recognize that the synthesis work of bringing datasets together for model validation and parameterization potentially presents a significant benefit to the broader community.
10. Consider broad metrics of success. Even if a parameterization is not immediately included in a model, building bridges between communities and engaging external members in discussion will lead to advances in a field over time. Be open to serendipity. Even if model physics does not improve, perhaps the chemistry will.





These tips arose from US CLIVAR sponsored Town Hall at the 2018 Fall AGU meeting to discuss how to most effectively leverage the climate process team program to facilitate improvements to national modeling center models. They were compiled by the Town Hall conveners: Victoria Coles (University of Maryland Center for Environmental Science), Aneesh Subramaniam (Scripps Inst. Of Oceanography), Caroline Ummenhofer and Hyodae Seo (Woods Hole Oceanographic Institute), summarizing the inputs of a panel of experts from national modeling centers (Gokhan Danabasoglu from NCAR and Robert Hallberg from GFDL), prior CPT postdocs (Baylor Fox-Kemper from Brown University), and CPT leaders and participants (Sonya Legg from Princeton University and Chris Bretherton from University of Washington).

