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SCRIPPS INSTITUTION OF OCEANOGRAPHY, UCSD
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May 5, 2017

TO: Dr. Margaret Leinen, Director, Scripps Institution of Oceanography

FROM: Dr. Arthur J. Miller, Head, Oceans and Atmosphere Section

RE: Revised Faculty-Researcher Hiring Plan for the Oceans and Atmosphere Section

This is in response to your request for a Revised Joint Faculty-Researcher Hiring Plan for the Oceans and Atmosphere Section. This should be read in conjunction with the Original Hiring Plan (April, 2015), which was developed with far more effort and time than was available for this revision, as well as the Revised Faculty Hiring Plan (May, 2016) and the Research Hiring Plan (November, 2016).

From the completed faculty searches, there are currently six new members of the OA Section, Three of these hires fit neatly into the research expertise that was indicated in the Original Hiring Plan. These are:

Large-scale Observations: Sarah Purkey - Argo, physical oceanography
Observing Technology: Drew Lucas - interdisciplinary oceanography (Joint MAE)
Cryosphere: Fiamma Straneo - Polar oceanography

Three new hires have expertise that was unexpected in the original plan. They involve climate modeling and geoengineering, epidemiology and climate, and biometeorology:

Kate Ricke - Climate modeling/Geoengineering/Policy (Joint GPS)
Jenni Vanos - Biometeorology/Climate statistics and health (Joint Health)
Tarik Benmarhnia - Epidemiology/Climate change scenarios (Joint Health)

From the faculty searches that are currently in progress, there are potentially four new OA Section members:

Mark Merrifield – Coastal oceanography and global sea level – Director, CCCIA
Janet Becker – Ocean surface wave theory and modeling – LSEO (Spousal hire)
TBD – Experimental Ocean Acoustics (MPL)
Erik Conway – Environmental Justice and Climate (Joint History)

Only the Acoustics position was explicitly requested in the Original Hiring Plan.

From the Researcher search that is currently in progress, we anticipate at least one new appointment, most likely in Ocean Data Assimilation, with the possibility, albeit unlikely, of an additional appointment in either Large-Scale Sustained Observations of the Deep Ocean or Polar Science.

With this information concerning the new research expertise, and following the progression in the Original Hiring Plan, we recognize that we have a vital need to address ***atmospheric greenhouse gas research in the Advanced Global Atmospheric Gases Experiment (AGAGE).***

Our top priority in faculty hiring is to recruit an excellent scientist to replace our **AGAGE** leader Prof. Ray Weiss in order to maintain excellence in atmospheric greenhouse gas research. The Advanced Global Atmospheric Gases Experiment is a vital cooperative research program to monitor and assess the levels of GHG and stratospheric ozone depleting substance emissions around the globe. Scripps has an international leadership role in that program that absolutely needs to be maintained by a targeted faculty recruitment in our section. This would require the recruitment to be open to mid-career and senior level scientists, although exceptional early-career candidates could also be considered.

We have two secondary high-priorities in faculty hiring from the Original Hiring Plan: **Large-Scale Sustained Ocean Observations** and **Data Assimilation and Modeling**:

The loss, through retirement or death, of key senior institutional leaders in our major international programs that are involved in large-scale sustained measurements of the global oceans creates the need for a new recruitment in this arena. We need to continue the prominent role that Scripps has played in the creative development of new instruments and the practical implementation of sampling programs. These types of programs serve a vital role in many aspects of climate monitoring, diagnostics and forecasting. An appointment open at any level would be ideal to allow for a wide-reaching and conclusive determination of a superior candidate.

While we anticipate a new Researcher hire in data assimilation, there is very strong sectional support for a new faculty FTE in this field because we have numerous funded projects in the section that involve data assimilation and modeling, and these projects support graduate students who need mentoring. Preparing for the future by hiring an early-career expert in this field is vital to our Section's scientific developments. Additionally, while several section scientists presently engage in research in these fields, no one teaches Data Assimilation, which would be a popular class among our PO, AOS and CS students. Last summer, I reached out to the MAE Department, which agreed to support a joint 50%-50% FTE in this field. If you would pre-approve this type of split appointment this year, I will contact them again to see if they are still interested. The candidate would have a strong theoretical foundation in various techniques of data assimilation, would be involved in developing new twists on the techniques and would be applying that understanding to real-world problems.

Additionally, the proposed **joint 3-Section Marine Biogeochemistry** search is appealing to our section, as long as it does not interfere with our primary needs for this year. It is especially appealing in that it could nicely dovetail with the research interests of the AGAGE hire. We only request that atmospheric (or atmosphere-ocean) biogeochemistry be added to the list of research expertise in the job ad.

Regarding the next OA Section Researcher hire, it is impossible to be specific since the current search is still in progress. We have previously outlined the top three priorities along with five other potential targeted research areas. If we assume that one research appointment in **Data Assimilation** arises from the current search, then the next two priority research areas would be:

Large-Scale Sustained Observations with Deep Argo, which has vast potential for changing the way we think about the deep ocean through robotic sensor innovation and deployment that leads to new long-term observations in physics, biology, and chemistry, and **Polar Science**, which would help catalyze the new Polar Center with an infusion of talent in theory and modeling of the ice-ocean-atmosphere system.

In the unlikely scenario that one or two extra research appointments fall in our Section from the open search, then we would revisit the priorities of the other key research areas that were discussed in detail in the Researcher Hiring Plan, namely, **Ocean Acoustics**, **AGAGE Experimental Science, Large-Scale Sustained Ocean Surface Observations, Ocean Mixing** and **Sub-Seasonal to Seasonal Atmospheric Prediction.**

In conclusion, from our present perspective given the list of new and anticipated faculty and research hires, the revised structure of the Original Faculty Hiring Plan is rendered as follows:

2017:
Maintain Excellence: Greenhouse Gas-AGAGE
Maintain Excellence: Large-scale Observations/Observing Technology
New: Data Assimilation and Modeling (Joint with MAE)
New: Marine Biogeochemistry (Joint with BIO and Earth)

2018:
New: Greenhouse Gas Modeling
Maintain Excellence: Theory
Maintain Excellence: Acoustics

2019:
Maintain Excellence: Air-sea interaction observations