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SCRIPPS INSTITUTION OF OCEANOGRAPHY, UCSD
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TO: Dr. Margaret Leinen, Director, Scripps Institution of Oceanography

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

RE: Revised Hiring Plan for the Oceans and Atmosphere Section

This is in response to your request for a Revised 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.

There are potentially eight new members of the OA Section, pending faculty votes, offers and acceptances. Three of these **potential** 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

* Pending Faculty vote

Several other **potential** hires have expertise that was unexpected in the original plan. They involve climate modeling and geoengineering, sensors development for atmospheric chemistry, epidemiology and climate, biometeorology and coastal engineering:

Gerard Wysocki* - Observing Technology/Atmospheric Chemistry (Joint ECE)
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)
Timu Gallien* - Coastal urban flooding observations & modeling (Chancellor's Fellow)

* Pending Faculty vote

Many of the OA Sections academics were very concerned that the expertise of the UPP SIO-Health candidates did not sufficiently overlap with OA Section interests or fit into any targeted aspect of our long-term scientific growth plans. We hope that in the future our Section will have a more formal and clearly defined role in deciding the expertise and excellence of the new hires that involve joint appointments between our Section and other UCSD departments.

The research expertise of these potential hires all fall in the ***oceanographic and atmospheric sciences*** arenas. Evaluating these potential hiring results in the context of the overall balance of

research in the OA Section, we recognize that we have a vital need to also address ***ocean acoustics***.

The acoustic sensing of targets in the ocean, with all its medium complexity, is crucial to Navy interests and corresponds broadly to a major component of the research endeavors of the Marine Physical Laboratory. In order to maintain excellence in ocean acoustics, MPL now needs to plan for the retirement of Prof. Bill Kuperman, who has served for 25 years as MPL Director. We therefore propose to hire a mid-career (~10 years experience) **Experimental Ocean Acoustics** professor who executes sea-going experiments, applies physics-based signal processing techniques to ocean acoustic data, and has a fundamental understanding of the theoretical underpinnings of this field. We envision that this candidate will exhibit scientific leadership in acoustics and will eventually be able to step into the role of MPL Director for the subsequent two decades. Towards this goal, the candidate will be mentored over a period of years by Prof. Kuperman, who will introduce the new professor to the key Navy, ONR and other federal agency officials that form the network of MPL connectivity.

We have a second high-priority need in the Section, which is for an expert in **Data Assimilation and Modeling.** We have numerous funded projects in the OA Section that involve data assimilation and modeling. Preparing for the future by hiring an early-career expert in this field is vital to our Section's scientific future. 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. Motivated by your suggestion of splitting FTE's with other departments, I have reached out to several leaders in the **MAE Department** and they are very supportive of developing a joint **50%-50% FTE** hiring plan, as long as it suits both their interests and our own. In this regard, 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 involving modeling of ocean circulation, coupled ocean-atmosphere processes, the coupled climate-hydrological cycle, coupled greenhouse-gas-climate processes and/or the ocean-atmosphere-cryosphere system.

Reflecting on the Original Hiring Plan, we see that in proposing these two priorities we have bumped the hiring of a new scientific leader for the **AGAGE** program by a year. This postponement of hiring an excellent scientist to replace our AGAGE leader Prof. Ray Weiss has occurred repeatedly for many years. So in the 2017 hiring cycle, we fully expect to support maintaining excellence in the AGAGE program as our top priority. 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 a leadership role in it that absolutely needs to be maintained by a targeted faculty recruitment in our Section.

Additionally, the topic of a *joint 3-Section Biogeochemistry* search came up this week in email conversations with Prof. Lihini Aluwihare and the other Section Heads. We had briefly talked about this topic at our OA Section meeting last week, but did not go into any detail. There is, in fact, general support in our Section for such a plan as long as it does not interfere with our primary needs for this year.

Lastly, we must consider the 2nd hire that was proposed in the **P.O. Argo Search, Dr. Greg Johnson**, who has a spouse, Prof. LuAnne Thompson. Dr. Johnson would be an ideal leader of the Scripps component of the Argo program by continuing the prominent role that Scripps has played in the creative development of the instruments and the practical implementation of the sampling program. Since the spousal hire complicates things because both candidates would require Full Professor positions, we invited Prof. Thompson for a visit this past week to establish how she complements our Section's expertise. We therefore have added this potential joint-hire opportunity to this year's hiring plan with the hope that this opportunity for such an **outstanding hire** would be embraced by the entire institution. However, since I feel that it is my responsibility to prioritize each of our hires based on the overall interests, needs, and concerns of the OA Section, we regard opening new searches for the Experimental Acoustics and Data Assimilation hires as our first priority for 2016.

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

2016:
Maintain Excellence: Experimental Ocean Acoustics **1.0 FTE**
New: Modeling and Data Assimilation **0.5 FTE (**joint with MAE, if they agree)
Maintain Excellence: Large-Scale Observations/Argo **Dr. Greg Johnson 1.0 FTE**
Spousal Hire: Ocean's Role in Climate **Prof. LuAnne Thompson 1.0 FTE**

2017:
Maintain Excellence: Greenhouse Gas-AGAGE
Maintain Excellence: Large-scale Observations/Observing Technology
New: Greenhouse Gas Modeling

2018:
Maintain Excellence: Theory
Maintain Excellence: Acoustics

2019:
Maintain Excellence: Air-sea interaction observations