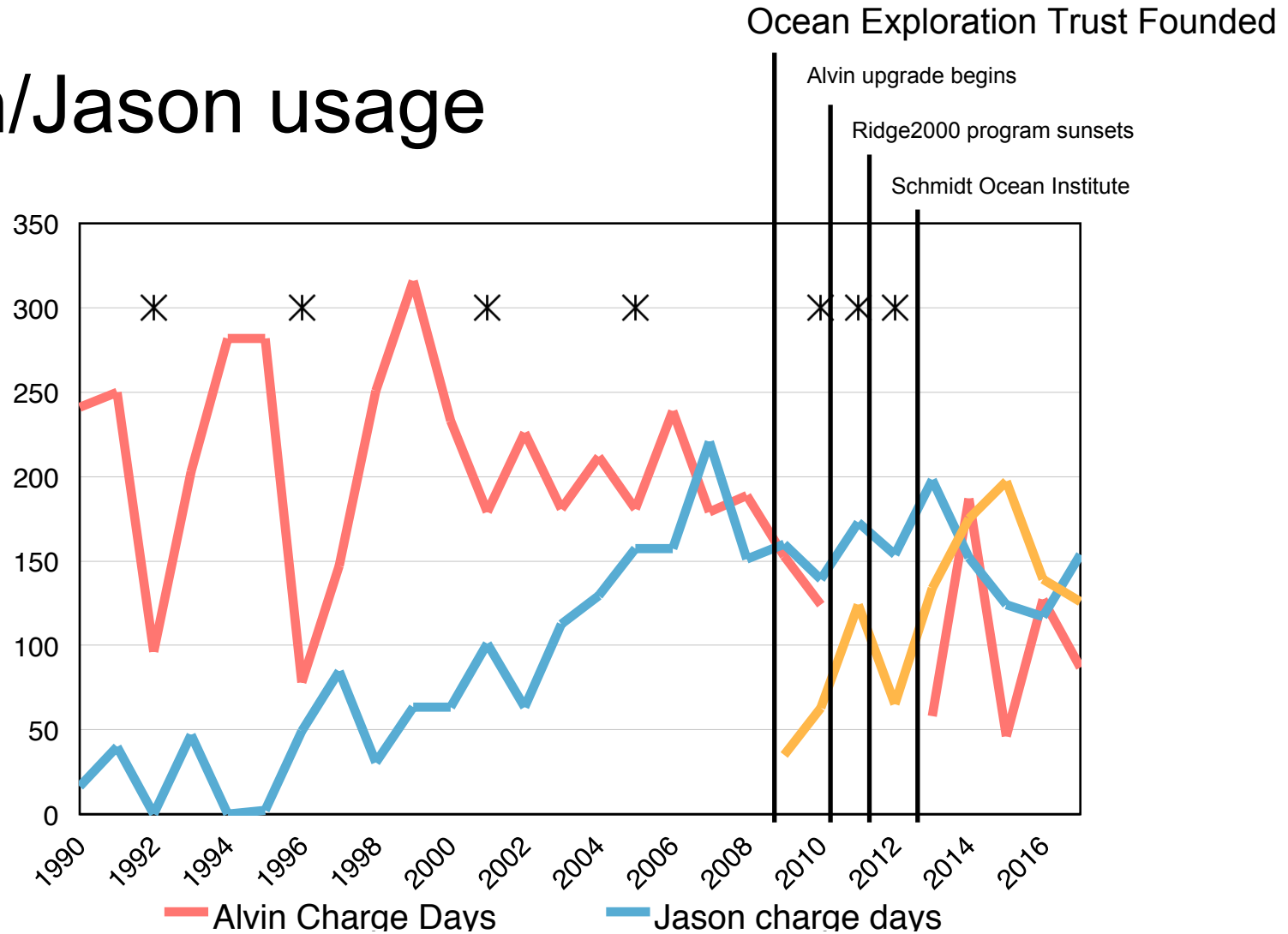




Optimizing NDSF Vehicle Use



Alvin/Jason usage

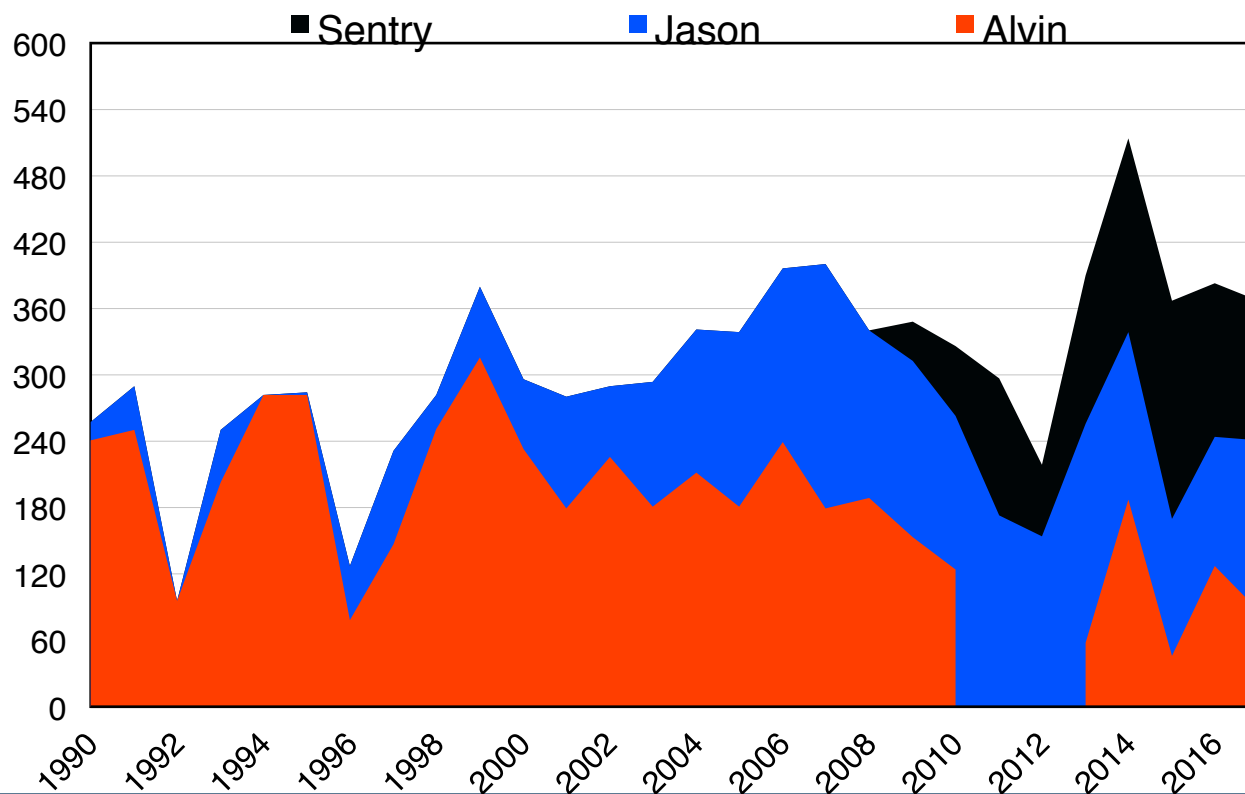




NDSF NATIONAL DEEP SUBMERGENCE FACILITY



Alvin/Jason usage



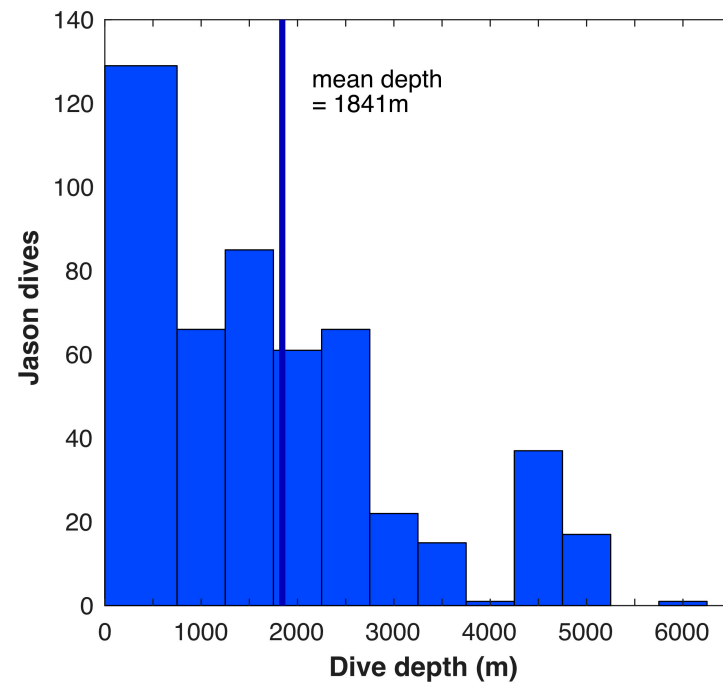
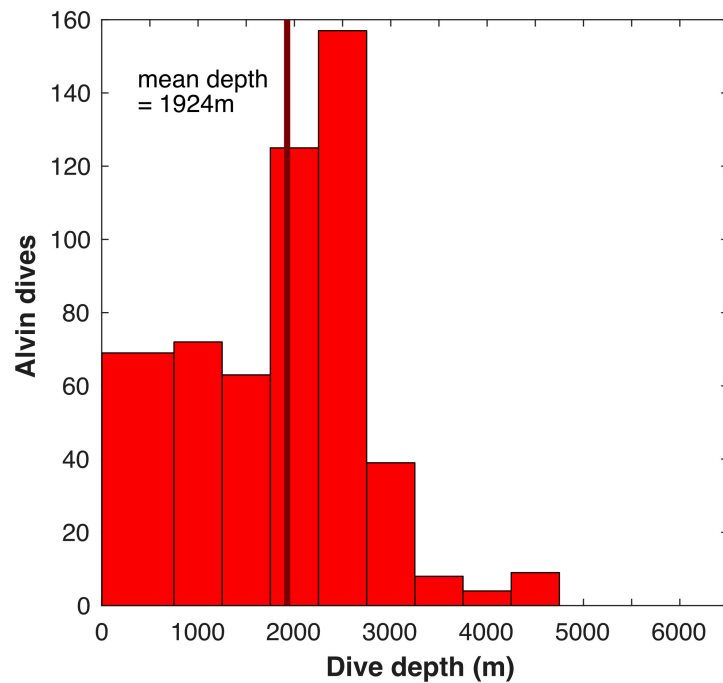
What explains the plateau/decline in NDSF vehicle utilization?

Is this rate of utilization the 'new normal' or part of a cyclic behavior?

What can we as DeSSC, Operators, Sponsors do to ensure vehicle usage is optimized?

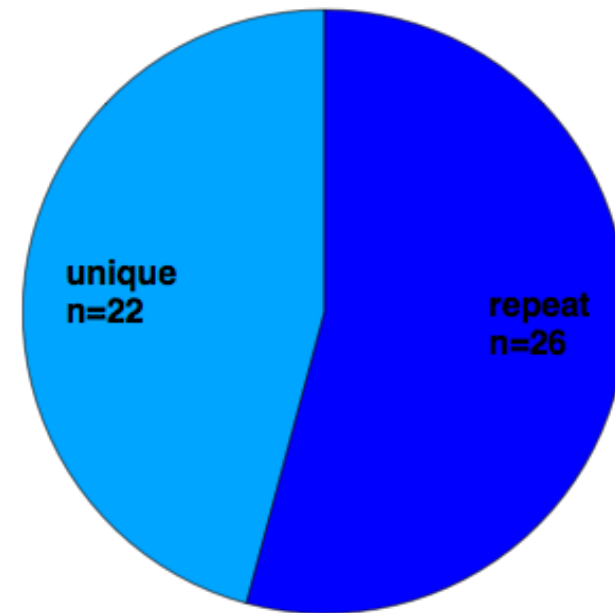
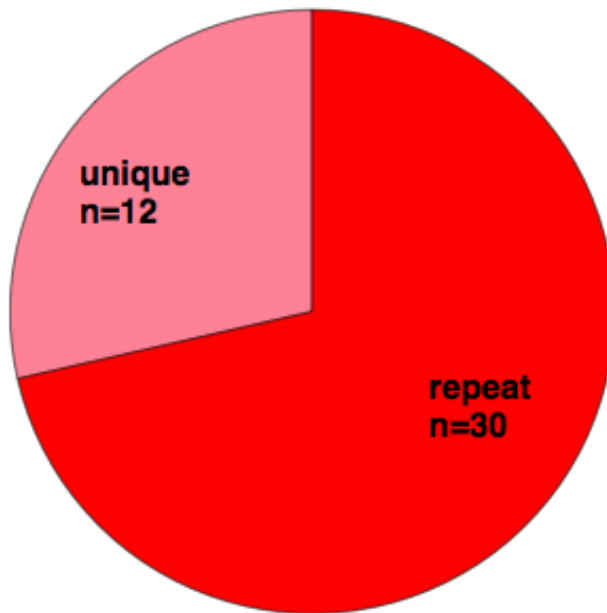
Some data and observations over the period of 2008-2017...

Alvin/Jason Depth Rating



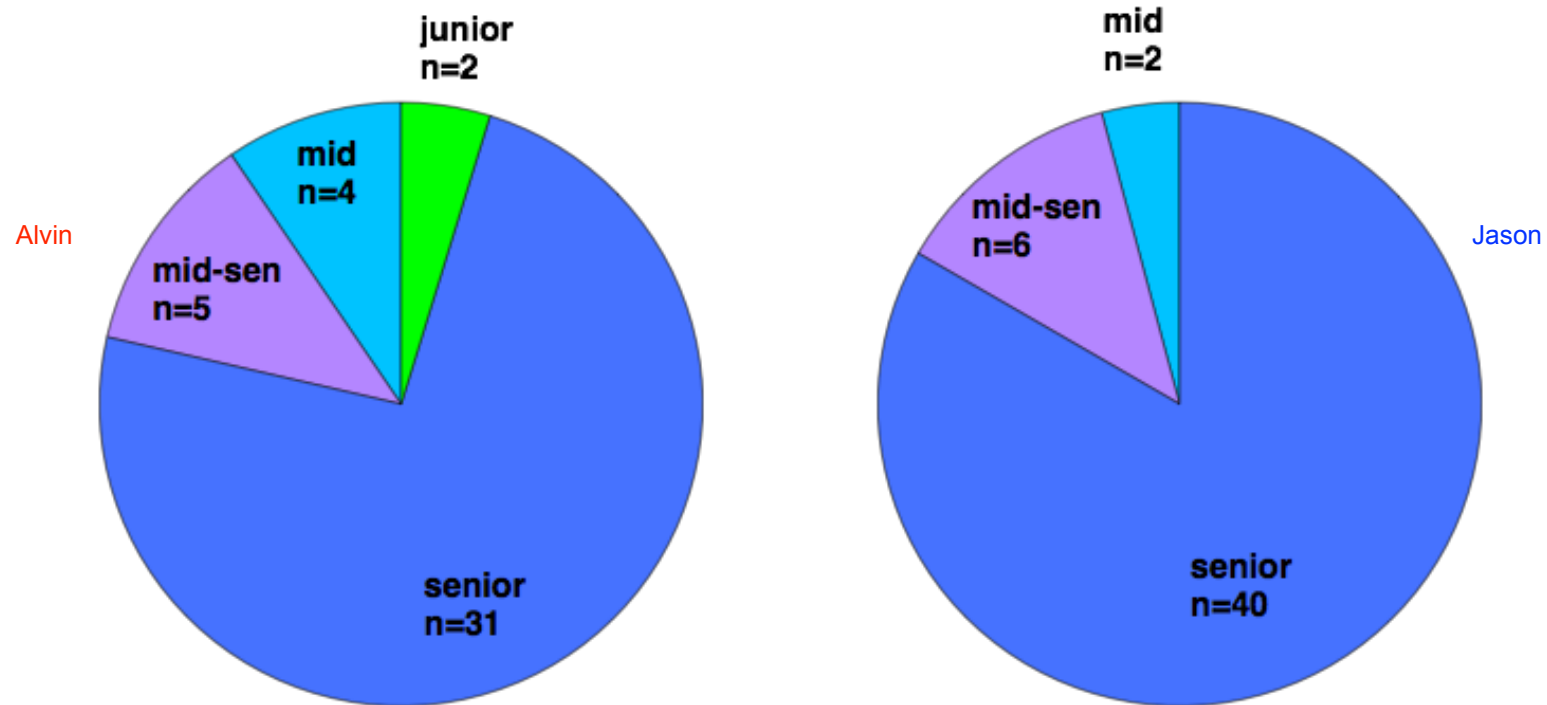
Differences in depth capabilities of Jason and Alvin account for a small amount of work that only Jason can accomplish. Depth rating difference will be retired by 2021.

Alvin/Jason User Demographics



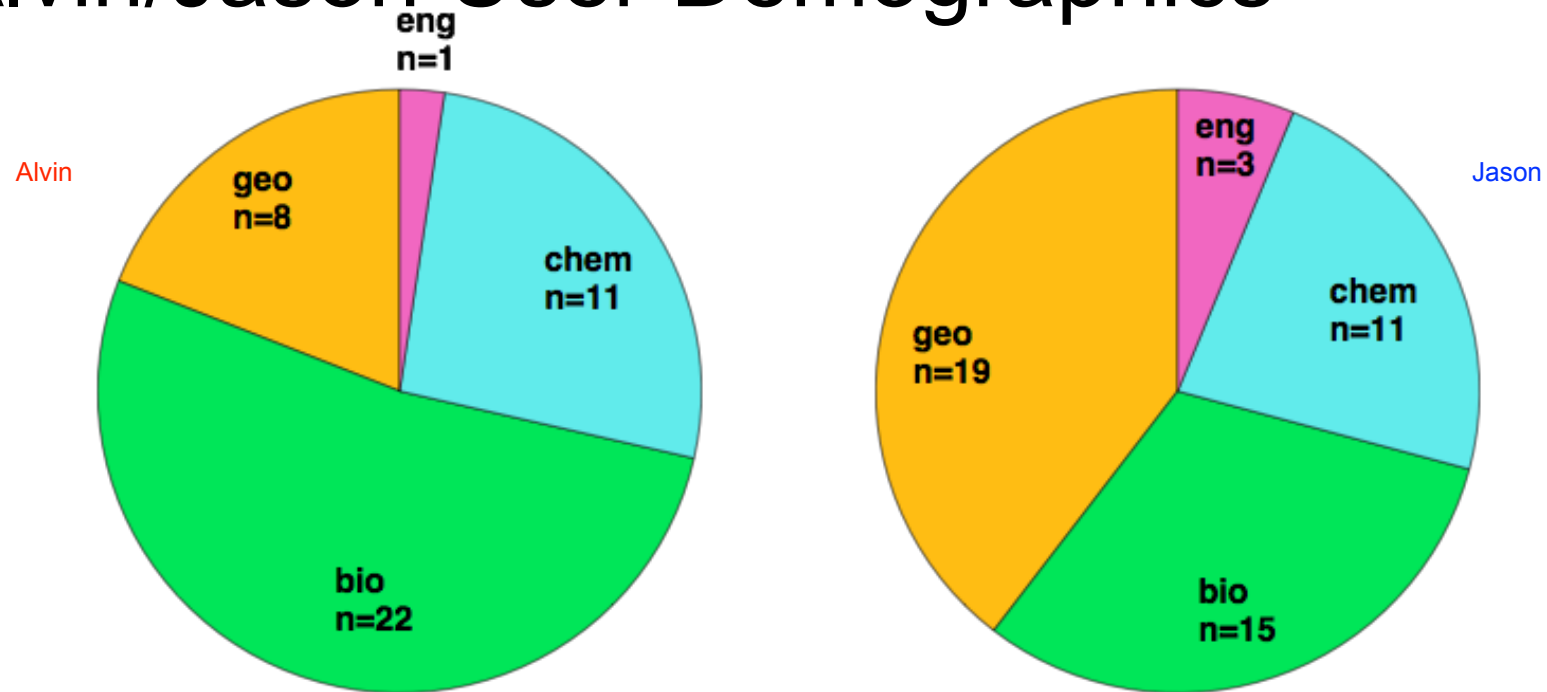
Alvin supports more repeat users than Jason. Of the unique users of Alvin (n=25) and Jason (n=31), 9 have used both over the time period reviewed.

Alvin/Jason User Demographics



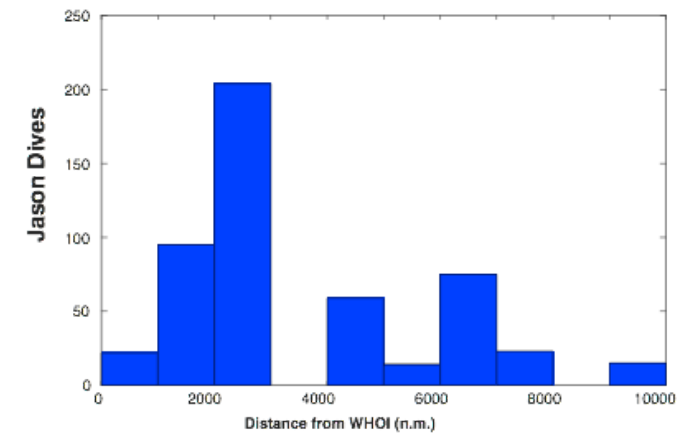
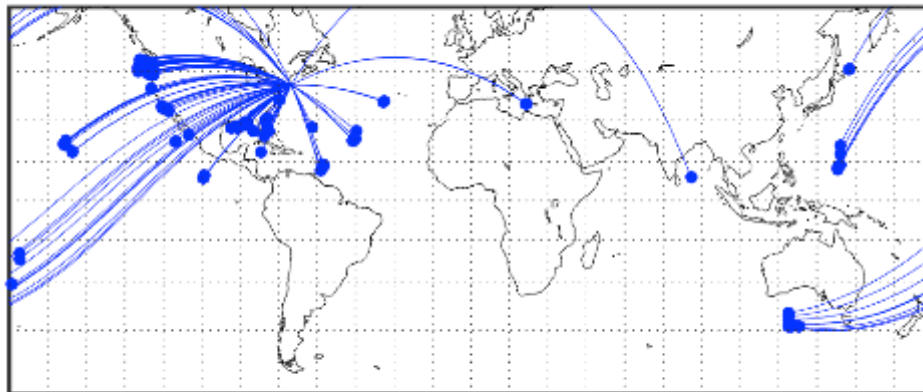
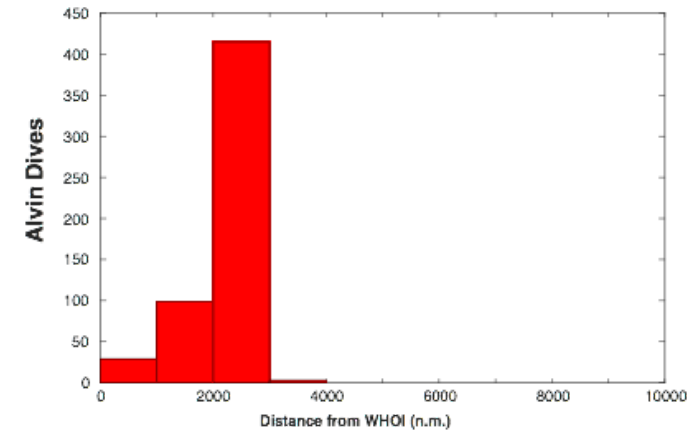
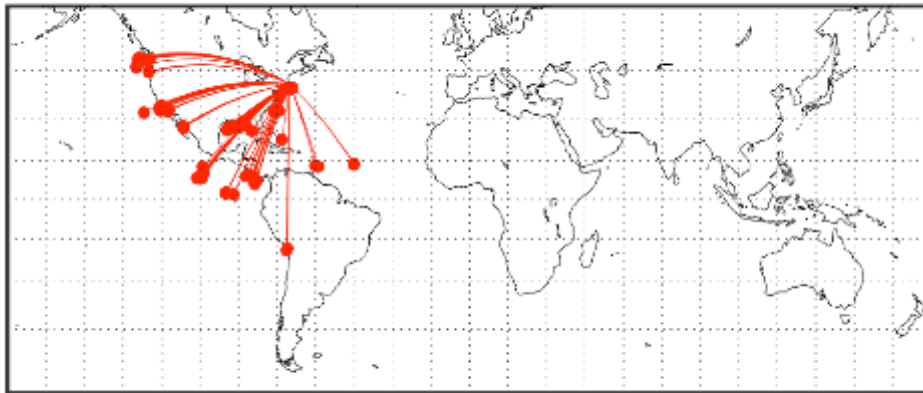
Jason supports a slightly higher percentage of 'senior' researchers, but for both vehicles, the relative proportion of mid and junior chief sci's is lower than I expected.

Alvin/Jason User Demographics



Alvin supports more 'biological' research; Jason more 'geophysical' research. Jason's support of 'engineering' work is growing and is a significant difference in the use-profile of the vehicles.

Alvin/Jason Support Vessel Constraints



Other perceived capability distinctions

Bottom time / operational pacing

- The need for extended bottom time (e.g. fluid pumping) has driven work towards Jason in some cases, but there are misconceptions (I believe) about how significant the bottom time differences are and how operational pacing and science objectives can align.

Human presence

- Aside from cases such as implodable volumes and entanglement risks, this factor is commonly seen as ‘hokey’, and is difficult to quantify, but is anecdotally important to Alvin users.

Funding landscape

- Deep submergence proposals are funded at the same rate that they always have (according to NSF). Is proposal pressure lower than in the past, or are smaller programs are being funded?
- With the sunseting of the Ridge2000 program, the lack of a interdisciplinary program has been missed by the community to seed proposal ideas. Is the community shrinking?
- Are non-profit deep submergence programs (e.g., OET, SOI, Dalio) in competition for the same science?
- To what extent can we expand our sponsorship to other federal agencies (e.g., NOAA, NASA, ONR) and to non-federal sources? Are there impediments to doing so due to scheduling, insurance requirements?

For discussion...

- Is vehicle use optimized, and if not what are the reasons?
- How do we educate users on the vehicle choices available to them?
 - New users (early career, other disciplines).
- How do we raise enthusiasm among the established user base?