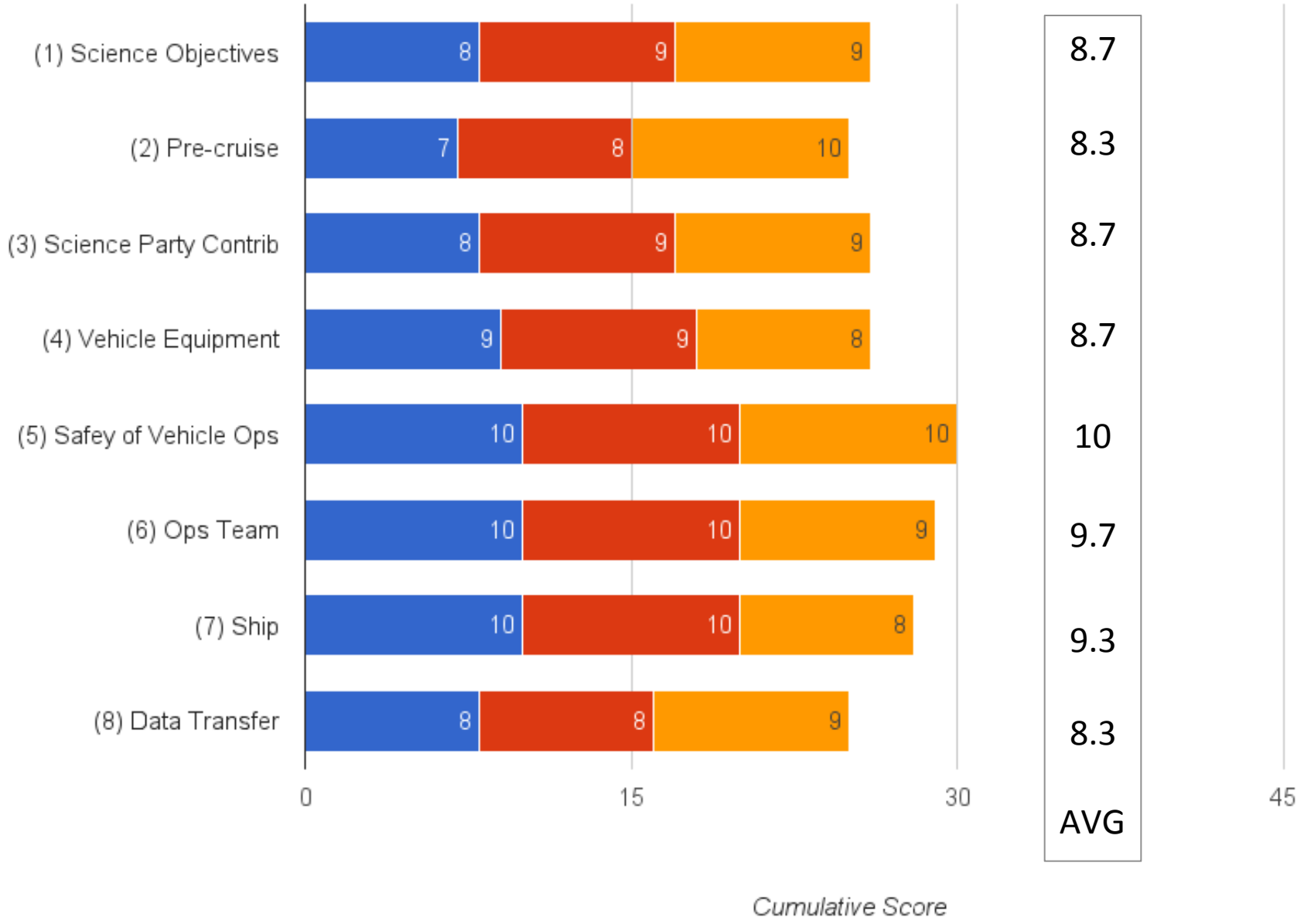
Summary of 2016 *Sentry* Debriefs

4 Cruises, 3 Debriefs, 3 PCARs

Sentry PCAR Summary (3 PCARs submitted for 4 Cruises*)



*1 PCAR= 2-Cruise Program; 2 PCARs submitted for 1 Cruise; *1PCAR = Outstanding*

Sentry Debrief Highlights

- Overall, PIs were pleased with *Sentry's* performance and capabilities and were able to achieve their science goals
- Battery improvements yielded significant improvements in bottom time
- Team is highly capable and great to work with

Pre-cruise - Recommendations

- During 2 cruises, *Sentry's* operational capabilities were not what the PI expected*
  - Vehicle had difficulty operating near-bottom on steep slopes.
  - *Sentry* was expected to transmit data to enable dive plan mods during dive. This capability was 'rudimentary and iterative' and was not really available until last dive.
  - Sentry was believed to have the capability to perform 'tow-yo' transects in the water column.

*PIs noted that some of the blame falls to them for 'hearing what they wanted to hear'.

Pre-cruise - Recommendations

- During 2 cruises, *Sentry's* operational capabilities were not what the PI expected
  - **Suggestion**: Describe proven capabilities more prominently on *Sentry* webpage and update webpages regularly. Clearly distinguish between proven capability and potential capability
  - **Suggestion:** Continue to reinforce capabilities during pre-cruise discussions to be sure users are aware of the limitations.

Operations - Recommendations

- *Sentry* was expected to transmit data to enable dive plan mods during dive. This capability was ‘rudimentary and iterative’ and was not really available until last dive. Data was transmitted even when ship was out of range.
  - **Recommendation**: *Sentry* should be able to cache data until acoustic are reestablished -or- be able to communicate through via surface repeater (e.g., an autonomous surface craft).

Sensors - Recommendations

- Vehicle power fluctuations created background noise that was interfering with sensor data. PI believes that integrating analog-to-digital sensors may be a persistent problem for Sentry because of electrical noise.
  - **Suggestion**: This should be reviewed.

Sensors - Recommendations

- Multibeam data required extensive post-processing
  - **Recommendation**: *Sentry* group should support post-processing for bathymetry data at sea or onshore.

Other Recommendations

- Debriefs recognized by PIs as valuable
  - **Recommendation**: Pre-Cruise call should happen sooner after cruise.

Other Recommendations

- Program required rapid turn around of ship-based Multibeam data. *Sentry* group recommended contractor for at-sea data processing but data bottleneck was problematic.
  - **Suggestion**: The Multibeam Advisory Committee should be consulted for how to best provide rapid turn-around of ship-based MB data.

Other Recommendations

- Chief Sci was a first-time *Sentry* user and was not fully aware of capabilities.
  - **Suggestion**: NDSF should provide a mechanism for first-time user training to ensure they have realistic expectations of what can be accomplished.