SCOAR Spring Meeting
07 June 2022
Virtual

Alexander Fisher	Alice Doyle	Andrew Woogen	Armin Sorooshian
Bridget Harrell-Donze	Britt Stephens	Chris Zappa	Clare Gaffey
Ed Romero	Hanumant Singh	Joseph Cione	Libe Washburn
Patrick Gray	Michael Starek	Reggie Beach	Stian Alesandrini

Participants: 16

Welcome – Chris Zappa & Alice Doyle

- Last meeting was in January
- Round robin introductions
- Introducing new members

UAS in Marine Science: Examples from Duke's Marine Robotics and Remote Sensing Group - Patrick Gray / Duke University

Slideshow available here: https://www.unols.org/sites/default/files/202206sc_ap01.pdf

Questions:

Chris Zappa – In your marine mammal work you said you were getting to the identification stages. The differences can be very subtle. How are you doing the identification?

Patrick Gray – We are finding that the differences between the animals are very clear.

Chris Zappa – Are you looking at the structure of the mammal or the visible characteristics?

Patrick Gray –The body shape and coloration is so different that we are often able to use that for identification. We are able to differentiate between pups and adults by temperature differences.

Hanumant Singh – We are looking at penguins. Pairs and chicks.

Patrick Gray – structure in motion. Good correlation

Hanumant Singh – Do you go lower, for better visibility?

Patrick Gray – We rarely go lower than 50 meters. We could see humpback whales eyes and they were looking back at us. They knew we were up there.

Clare Gaffey – When will ocean color paper be available and where? What were your major challenges?

Patrick Gray – The paper should be published very soon. Imaging radiometers. Variation is so small and so fine. Need nice gimbal.

Biggest limitation is that we needed more flight time.

Chris Zappa – When we were flying near Fiji, all of the ocean was a very similar color so when you see a plume it really pops out at you.

Patrick Gray – Ideally we could have a satellite that is looking for what we care about. Then when the satellite spots something it could trigger a drone to go out and take a closer look.

Chris Zappa – Or some kind of carrier of drones that could go out when triggered.
Patrick Gray – We didn't get permits to fly about 150 meters. Some of our problems could have been solved if we were at 100 meters.
Reggie Beach – When you were counting seals on the island did you do any on scene processing?
Patrick Gray – We didn't, but I could see some cool use cases. To see where to go next. The best processing machines are back in the lab.
Reggie Beach – If you process on board, you could carry back a lot less info.
Patrick Gray – We collected 30 to 60 gigs of data in a day.
Chris Zappa – We do edge computing, but we also send all of our data back real time. It allows us to determine where to take all our assets next. It is very efficient and has a higher possibility for success.
Patrick Gray – The bulk of our work has been pretty coastal. But it would be really beneficial if we went further out.
Mike Starek – XFM?
Patrick Gray – We put a laser altimeter on the drone and judge from that.

Developing Three Small Uncrewed Aircraft Systems to Routinely Sample the Hurricane Boundary Layer - Joe Cione / NOAA Hurricane Research Division

Slideshow available here: https://www.unols.org/sites/default/files/202206sc_ap02.pdf
Questions:
Chris Zappa – Great update. Looks like you are on the verge of some pretty exciting possibilities.
Chris Zappa – I always ask how low can we go? They always tell me what they are comfortable with and then I tell them we can go lower. What would be your lowest level be in a hurricane?
Joe Cione – We don't get any of these back, so we go all the way to the surface. I try to maintain a controlled flight. The laser is really critical in telling us how far we are from the surface. I will get aggressive as the flight goes on. We are testing different types of lasers.
Chris Zappa – We are planning our fall meeting for October. We would be glad to have you come back then and give us an update.

Fall Meeting

- Our last in person meeting was almost three years ago.
- Britt Stephens has volunteered to host.
- We are planning on 1.5 days. The 4th and 5th of October.
- Good to start putting an agenda together now.
- The agenda will include agency updates.
    - ICCAGRA UxS Discussion – if we could get them to come to the fall meeting that would be really cool
    - NOAA
    - NSF

    - USGS
- Would love for people to provide feedback on people to talk and for people to invite
- Anyone on committee that wants to give a talk please let us know
- Then longer talks by invited speakers
- Everyone is welcome, but only have money for travel costs for the committee.

Alice Doyle - Stian would you like to give a talk about Falkour?
Stian Alesandrini – We could give you an update. Hoping to refloat mid month and see acceptance testing around mid-September. Everything is up in the air with this strike.
Chris Zappa – We can talk about whether you want to give a talk in the fall or not.

Chris Zappa – I have blocked off OCT 3-6, but we haven't chosen which of the two dates?
Britt Stephens – Alice suggested the 4th and the 5th. People can usually get out of town if the second day is a half day.
Chris Zappa – So we will have a full slate of talks and maybe a tour?
Britt Stephens – We have to decide where we will meet. At least one day at the facility. Get a tour of the G5. Two days at RAF or one day at the ice lab. There are some labs and things we could arrange as well.
Chris Zappa – I will probably start a google doc that we can use for place holders.
Alice Doyle – If anyone has any students that would like to present let us know.
Britt Stephens – I will need a rough estimate on numbers for the health and safety people in the next month. Might be some local interest in attending as well.

Expanding Outreach

Chris Zappa – Please continue to think about how we can expand our reach as a community.

- Maybe a SCOAR version of StemSEAS.
    - We would need funding from agencies.
    - If we come up with a proposal it might be worthwhile.
- Another idea is a roadshow of SCOAR. Especially to institutions that don't know about SCOAR
- Summer internship program.
    - We have one here at Lamont.
    - Maybe other institutions would like to do that.
- These are just some ideas, we are open to any other ideas to expand our outreach.

SCOAR Input Needed

- Review of the UAS Guidance document – need to look at this over the next few months to see if it needs to be updated.
- Antarctic Research Vessel – Opportunity to provide input – everyone is requested to give input.

- I was thinking as the SCOAR committee we could put together some ideas about what would be useful to have.
- Individual input can be entered at the website.

Alice Doyle - I will send out and email with a link to the UAS guidance. If everyone could take a look and let me know if they have any feedback.
Chris Zappa – I will send out an email about expanding our reach and the Antarctic Research Vessel.

Alice Doyle – Maybe we can enter some of these ideas in the Global Class Science Missions Requirements as well.
Global Class Science Mission Requirements
Chris Zappa – We could look at the equipment the ship should be equipped with. Like every research ship has a CTD; maybe every ship should have a drone as well.

Britt Stephens – I have a quick question, is there a ICCAGRA website?
Chris Zappa – I looked as well and was not able to find a website. I do have two POCs though: Rebecca Shaw at NOAA and Tom Cinereous at USGS

End of meeting.