

Zimbra

amicallef@mbari.org

Re: DAS system to monitor sedimentary flows on seafloor

From : David Hill <david.hill@sintela.com>

Wed, 21 Jun, 2023 07:07

Subject : Re: DAS system to monitor sedimentary flows on seafloor

 1 attachment

To : Aaron Micallef <amicallef@mbari.org>

Hi Aaron,

I have answered your question inline below.

Kind regards

David

From: "Aaron Micallef" <amicallef@mbari.org>

To: "David Hill" <david.hill@sintela.com>

Sent: Tuesday, 13 June, 2023 16:18:31

Subject: Re: DAS system to monitor sedimentary flows on seafloor

Hello David,

I hope you are well.

I would like to thank you once again for our meeting of the 16th May. In the meantime I had discussions with my managers and engineers here at MBARI. We are planning an experiment in Monterey Canyon using various instruments (OBS, ADCP, AUV mapping) in November 2024 to March 2025 to detect and characterise sedimentary flows across a distance of about 40 km. We would like to have the simpler version of our stand-alone DAS system (figure attached) ready to be deployed by then.

Before my team starts considering feasibility and design, may I please ask you a few questions related to what Sintela might be able to provide? I think I have some answers to these questions already, but I would prefer if you confirm:

1. Which interrogator unit do you recommend that we use? I would like to use a 1 km long fibre optic cable with a minimum sample interval of 5 m.
For the fiber length and sample interval you require it does not matter whether you use the current Onyx™ Mk1.0 or the soon to be released Mk1.1. However, given your dates its most likely we would provide a Mk1.1
2. What are the specifications of this unit (e.g. power consumption, dimensions, weight, computer interface requirement, data generation)?
Attached is the provisional datasheet for the Onyx™ Mk1.1. I will issue a formal data sheet once we have completed all the compliance testing we intend to do before product release
3. Can the unit be rented? If yes, at what cost?
Yes, we will have a limited number of rental units available. Rental costs will be in the order of \$5,000 per week.
4. Would we be allowed to put the rented unit in the ocean during the November 2024 to March 2025 experiment?
Yes, but only if you can guarantee that you full damage liability insurance cover given the harsh environment you intend to use it in
5. If the unit cannot be rented, what is a rough estimate for the selling price and delivery time?
A Single channel Onyx Mk1.1 with academic discount will cost ~\$130k USD and can be delivered withing 14 weeks
6. Is switch on/switch off of the unit possible? If yes, how long does it take for the system to go live?

We can reset the software after which the unit takes around four minutes to come back on fully. However, Onyx does not have a quiescent state standby state which can be switched on. But this can be done using a timed or ethernet controlled power supply.

7. How important is burial of the cable for our experiments? If it is important, how deep should this be?

It depends upon which type of measurement you wish to make. If monitoring sediment gravity flows is your focus than I think a negatively buoyant cable laying on the seabed should be adequate

8. Are there software modifications that can be made to the unit to reduce the power consumption or optimise the system for autonomous deployment?

No, none that would make a big difference to the power consumption.

9. Would it be possible to pay non-recurring engineering fees to reduce power consumption of the unit?

We do have design work ongoing to produce a low-cost short range (<5km) DAS unit. For the fiber lengths you are considering it will have similar performance to the Onyx™. Here is a very preliminary spec for this device:

- Range: ~ 5 km
- Dimensions: Est.: 300 x 200 x 75mm
- Weight: ~5 kg
- Operating Temp: -10 to 50 °C
- Power: 4 - 48V DC, 40W
 - 110 / 230 VAC as option
- Software: Same as that which runs on Onyx™

The development of this is currently being self-funded and run as a background task. If you would like to support this development with NRE funding to speed up the development and testing to ensure it is available for your trial in November 2024 I can pull together a ROM cost.

Please let me know if you have any questions.

The idea is that, if this experiment works, MBARI purchases a unit that will be deployed repeatedly across the globe to monitor various seafloor geological processes

Many thanks for your kind help and best wishes,

Aaron

From: "Aaron Micallef" <amicallef@mbari.org>

To: "David Hill" <david.hill@sintela.com>

Sent: Friday, 12 May, 2023 17:20:42

Subject: Re: DAS system to monitor sedimentary flows on seafloor

Hello David,

Thanks for your email and apologies for my slow reply.

May I please ask you if next week would work for you? I am available every day (8.30 - 17.00 PDT time) apart from Thursday.

Thanks for your patience.

From: "David Hill" <david.hill@sintela.com>
To: "Aaron Micallef" <amicallef@mbari.org>
Sent: Tuesday, 9 May, 2023 07:08:48
Subject: Re: DAS system to monitor sedimentary flows on seafloor

Aaron,

I don't believe I responded to your email as I was away at the time, for which I apologies. I'm back in the office now so if you still wish to talk, I'm happy to do so this week.

Kind regards
David

David Hill
📞 +44 7909 484755 | ✉ david.hill@sintela.com

From: Aaron Micallef <amicallef@mbari.org>
Date: Thursday, 20 April 2023 at 19:28
To: David Hill <david.hill@sintela.com>
Subject: Re: DAS system to monitor sedimentary flows on seafloor

Dear David,

Thanks for your email.

I am sorry, it seems I saw your email too late.

Do you mind if we try same time on the 25th April?

Many thanks for your patience,

Aaron

From: "David Hill" <david.hill@sintela.com>
To: "Aaron Micallef" <amicallef@mbari.org>
Sent: Thursday, 20 April, 2023 01:40:14
Subject: Re: DAS system to monitor sedimentary flows on seafloor

Dear Aaron,

Thank you for your enquiry.

I'm free at 17:00 BST (09:00 PDT) today if you are available for a call / Teams meeting.

Kind regards
David

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From: Aaron Micallef <amicallef@mbari.org>
Sent: Wednesday, April 19, 2023 9:03:57 PM
To: Info@sintela.com <[info@sintela.com](mailto:Info@sintela.com)>
Subject: DAS system to monitor sedimentary flows on seafloor

To whom it may concern:

I hope this email finds you well.

I am considering the possibility of developing and deploying a standalone DAS system on the seafloor to monitor sediment gravity flows (among other processes) on the scale of days to months.

May I please ask you whether anyone from your team might be interested in a brief meeting to discuss the feasibility of such an experiment?

Thanks so much and best wishes,

Aaron

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