TN-284, Tools to be deployed/manipulated with Jason for monitoring of pressure conditions in borehole observatories.

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Please give a brief description of the equipment, its intended purpose, the cruise # it was last used on if any and its deployment method.

Colleagues and I will be fielding several systems for use in servicing subseafloor observatory systems (CORKs) for pressure monitoring, collecting fluids, and monitoring fluid flow from CORK wellheads.

(1) Communication with CORK pressure loggers using ODI connector, Holes 1301A/B, 1362A/B

This connector is same as used with Alvin each year between 2005-2009 and with Jason in 2010-11.
RS422
hard-switchable to power off
1.5 kg in air, 1.1 kg in water
connector will be serviced via pigtails with AWM connector, we will provide
Will be dummied off when not in use.

(2) CORK flowmeter (currently deployed on 1362B, to be deployed on 1362A)

Dimensions:	Inches
Length	47.0
Diameter	6.0

Weight:	Pounds
Dry	55
Wet	49

This autonomous, electromagnetic flowmeter system is currently clamped in place on the wellhead of the CORK in Hole 1362B. A ball valve below the clamp was opened in Summer 2011, allowing ~65 degC fluid to discharge from the wellhead through the flowmeter. The flowmeter the rate of flow with time, once per hour.

We are working on a new version of this tool, with IrDA communication capabilities. We plan to recover the tool currently deployed, and either redeploy this tool on a different wellhead, or deploy the newer version of this tool. This tool will most likely be recovered and deployed using the Jason basket, or it could be transported on a elevator.

Does the equipment require data or a power interface from the vehicle?

Both flowmeter systems are autonomous, but the newer system allows for IrDA communication using a receiver to be carried in the Jason basket. For the latter we will need:
IrDA communication transmit/receive
RS-232, 24 VDC
option to power on/off

Does this equipment require hydraulic inputs from the vehicle? No

(3) Communication with pressure logger in CORK in Hole 1024C
This is a secondary objective, if there is time. To communicate with this system, we will deploy a Seacon connector having these specifications:

RS232, 4-wire
connection including 9 V power (all hard-switchable to no connection)
4.4 kg in air, 3.4 kg in water
can be plugged into same Jason pigtail as O.D. Blue via AWM-8 connector

Note: if there is a dedicated dive at 1024C, this will be only communication required for that dive

(4) We will be bringing out an insertion frame for use with the 66-cm Alvin style heat flow probe. This device is to be deployed using a Jason elevator. It is separate from the standard heat flow probe, which is carried in the usual way by Jason. A set of drawings of the insertion frame is available here:

http://es.ucsc.edu/~afisher/post/TN-284/Prospectus/HeatProbeGuide_120221.pdf

We plan to deploy this device on an elevator, then pick up with Jason, will weigh about 50 lbs in water. Once positioned on the seafloor, the heat flow probe is inserted from the top of the guide tube, then pushed into the seafloor with the handle that extends upward from the probe. After collecting data, the probe is pulled out of the seafloor using the handle.

The probe is operated using a RS-232 connection with approx. 26 V DC provided by the vehicle. This is a standard Alvin/Jason heat probe. We will bring two with us, but we will be glad to test the system as well using a WHOI probe if one is available. We will also bring our own operating software for the probe, and will plan to leave with Jason personnel for use during later expeditions, if desired.

Additional systems are to be fielded by the University of Hawaii team (J. Cowen, co-PI) and University of Alaska team (C. G. Wheat, co-PI), but I don't have information on these systems, will be provided separately.