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NEPTUNE Canada cabled ocean observatory: latest developments and opportunities

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On December 8, 2009 NEPTUNE Canada went live allowing scientists all over the world to access data from instruments located at four nodes: Folger, Barkley, ODP 1027 and ODP 889. In September 2010, NEPTUNE instrumented the Endeavour Node. 2011 will be another busy year with another series of new instruments and the restoration of a few systems.

NEPTUNE Canada has planned a total of 3 cruises for this year. The first cruise will take place in May and will be dedicated to the redeployment at Barley Canyon of the world leading Vertical Profiling System (VPS), a winch operated system which is designed to regularly sample the water column. Once in place, the package will allow scientists to study the covariation of physical, biological and chemical parameters in this highly productive environment. The VPS was last deployed in September 2010 but had to be recovered because of a failed connector. However, before being retrieved, it performed several cycles up and down the water column demonstrating its potential. The second cruise will be mostly dedicated to maintenance activities but will still include some exciting deployments. In particular, we intend to deploy the TempoMini and Piezometer developed by IFREMER as another example of the type of synergies such observatories can foster. The third cruise will be the most ambitious yet. It will include the instrumentation of the Mothra site. Of particular interest will be the deployment of 3 sub-surface taught-line moorings to complete the installation of an array initiated last Fall. Each of these cable-connected mooring includes CTDs and current meters to explore the relationship between a rough bathymetry, hydrothermal vents and a complex circulation. Another major task will be the re-installation of the tsunami array at ODP 1027. This array was initially installed in 2009 but connection to the instruments has been lost over the past year.

With such an ambitious program, technical challenges will be numerous. It is important that we engage scientists to inform them of our progress, the trade-offs we have to face and review their needs. A team of Research Theme Integrators has now joined NC and is focusing on establishing strong communication channels with the user community. Through this operation, we want to clearly acknowledge that the real power of the observatory lies with the scientists. The more they will get involved, the more relevant and the more efficient we will become. Their input is key when selecting instruments. It is paramount when they inform us of potential projects and future scientific interests so together we can assess the degree of flexibility needed when adding to our infrastructure. It is thanks to their continuing involvement that NEPTUNE Canada will grow stronger and better in the years to come.