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# THE PANDORA CRUISE, JULY 2011: AN INTEGRATED APPROACH OF THE CIRCULATION AND GEOCHEMISTRY IN THE SOLOMON SEA

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## Résumé

One of the main objectives of the SPICE (South Pacific Circulation and Climate Experiment) international program is to gain a better knowledge of water mass transformations and pathways through the South-West Pacific. In addition to dynamical transformations, water masses undergo nutrients and micronutrients enrichments when entering in contact with the coasts of the Western Pacific. This impacts the productivity of the Equatorial Pacific Cold Tongue and therefore its climatic role. Trace elements that are injected from this "boundary exchange" provide key information on mixing processes. Establishing the distribution of these elements and quantifying these land/ocean inputs is a priority of the international GEOTRACES program. PANDORA is the labelled as the GP13 GEOTRACES section ([www.geotraces.org](http://www.geotraces.org)). In the frame of SPICE and GEOTRACES, the Solwara project focuses on these mechanisms in the Solomon Sea area, one of the key regions for the above mentioned surface and sub-surface water masses. This project includes historical physical and geochemical data analysis, deployment of autonomous observing platforms in the South-West Pacific, modelling, and the Pandora oceanographic cruise which specific objectives and

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\*Intervenant

strategy (cruise plans) will be presented in this talk. The main objectives of the cruise are: to provide a quasi-synoptic description of surface and subsurface circulation in the Solomon Sea and in the straits connecting that sea with the equatorial circulation based on both hydrological and geochemical parameters; to deploy a series of moorings in the straits to obtain the temporal variability of the circulation; to evaluate water masses transformations and mixing; to document water/margins exchanges. The experimental approach will combine physical, chemical and geochemical experiments, which will give access to a wide range of space and time scales of the circulation.