



ROMA TRE
UNIVERSITÀ DEGLI STUDI

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Claudio Faccenna's research report on the activity Tokyo 6-23 May 2015

The tectonic of the western Pacific subduction zone and its linkage with deep structure is still controversial. The subduction zone is indeed very peculiar, being represented by a linear shallow slab plunging down to a depth of 660 km. Recent seismic tomography illuminated also more closely the structure, showing a portion of slab flat lying on the 660 km.

The aim of my research activity during my stage in Tokyo was to try to understand how the tectonic structure may be related to geometry of the subduction zone.

In collaboration with Prof. Dr. H. Kawakatsu and Prof. Dr. S. Honda, I analysed in detail existing and new data concerning the deep structure of the Japan slab.

For project, I run absolute plate motion model using *GPlates* software to predict the evolution of the subduction zone in time and to define the age of the subducting seafloor. I also implemented the *Gplates* reconstruction with tectonic features and extending the reconstruction further to the South. This provides a larger picture linking the evolution of the Japan subduction zone with the one of the Izu – Bonin – Marianas subduction zone.

In collaboration with Thorsten W. Becker we also set up the initial boundary condition for numerical models to better understand the evolution of the system from a dynamic point of view.

The result of this two weeks research shows :

a) the tomography imaged slab probably represented the ocean floor subducted during the last 20-30 Ma;

b) there should be strong linkage between the evolution of the Izu-Bonin retreating slab and the Japan one.

Further analysis will hopefully lead to a fluido-dynamic model for the evolution of the Marianas-Izu-Bonin-Japan slab during the last 30 Ma.