

REGIONAL SURFACE WAVE TOMOGRAPHY IN THE SCOTIA SEA REGION

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More than 300 events recently recorded by seven seismic broad-band stations (OGS-IAA, IRIS) have been collected and processed to obtain an overview of the crust and upper mantle S-wave velocities from a surface wave velocity regionalisation in the sub-antarctic Scotia Sea region. Group velocity of the fundamental mode of Rayleigh and Love waves in the period range between 15s to 50s are used to obtain tomographic maps of the Scotia Sea region, Antarctic Peninsula and the tip of Southern America. From the regionalisation of the dispersion measurements we obtain smoothed local dispersion curves, in correspondence of the main geological and tectonic features, and by their nonlinear inversion the S-wave velocity versus depth profiles. The signatures of the sedimentary basins, the oceanic crust and the ocean-continent transition zones, marked on the maps, are not accurately pointed out by the global tomographic maps, whose spatial resolution is lower. The differences between our regional models and other large scale models help to define a 3-D velocity model of the Scotia Sea region to be further improved by waveform inversion.