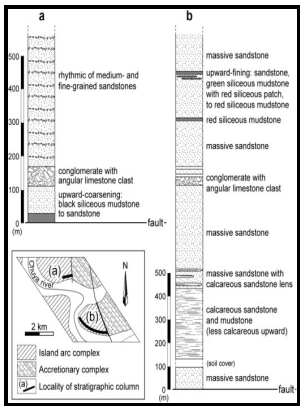
Geophysical investigation of the physical properties of subduction accretion complexes

University of Birmingham - Plate tectonics on the Earth triggered by plume



Description: -
-geophysical investigation of the physical properties of subduction accretion complexes
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Tags: #Subduction

Subduction

There is little onshore seismic data, and GPS measurements are sparse. Time-lapse digital images were taken through the transparent side glass at 5 s intervals using a personal computer—based controller. Scientific theories of how subduction and plate tectonics began on Earth—and what the tectonic structure of Earth was before this—remain enigmatic and contentious.

A geophysical potential field study to image the Makran subduction zone in SE of Iran

We infer that rocks originally located east of the assumed TS domain will not record sufficient burial or subduction in the past 2 Ma.

Perspectives on the roles of melanges in subduction accretionary complexes: A review

Modelling the interplate domain in thermo-mechanical simulations of subduction: Critical effects of resolution and rheology, and consequences on wet mantle melting. Toward a dynamic concept of the subduction channel at erosive convergent margins with implications for interplate material transfer.

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Second, after accretion, the sedimentary, tectonic, diapiric, and polygenetic mélange units serve as single block or sheet architectural AUs or subunits within larger accreted AUs of the SAC. We introduce two additional criteria in approaching these complexities and in recognizing different processes of polygenetic mélanges formation in the field when primary diagnostic fabrics were reworked by multiple deformational events. It can also depend on the source-receiver geometry, receiver spacing and the frequencies used in the study.

Invited review paper: The control of subduction zone structural complexity and geometry on margin segmentation and seismicity

The thick black lines depict the two main kinematic boundaries reverse faults accommodating the current plate convergence. The lower crust is demarcated from the middle portion with bright subhorizontal reflection fabric from 28 to 40 km depth in WDC Fig.

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The Alps 2: Controls on crustal subduction and ultra high-pressure rock exhumation in Alpinetype orogens.

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Plate tectonic models suggest that the EDC had evolved by successive accretion of arcs against a foreland the WDC in a convergent setting during the Neoarchean Chadwick et al. Note that shear zones are trending towards NW—SE direction modified after Vijaya Rao et al. In this location fluids can be detected as they diffuse upwards from the subducting slab and hydrate the mantle wedge.

The study of subduction channels: Progress, controversies, and challenges

Furthermore, the seismic reflection characteristics of the Hikurangi subduction margin also suggest localized reductions in effective stress associated with seamount subduction. To allow for a more detailed comparison between predicted thermochronometer ages with thermochronometric constraints we plot the temperature against time recorded by each studied particle.

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