

An alternative view on subduction zones

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Zonal motion

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Zonal motion on the sea and the great plains has long been known (1910-1912) and the fact to assume that it may occur also on earth beneath the rigid crust. Generally, zonal motion is characterized by increasing equator velocities from poles to the equator. This is particularly well illustrated by the coral wind profile for Tahiti's atmosphere.

On earth a similar profile of velocities in the sub-lithosphere, produced by the zonal wind and the occurrence of horizontal shear in the rigid crust and the occurrence of horizontal shear in the asthenosphere, produces a more rapidly moving equatorial zone. This zone, moving in the same direction as the zonal wind, may constitute the equator of the crust and be called by Holmes (1944) - zonal wind. This zonal wind may be called the great equator. This zonal wind may be called the great equator. This zonal wind may be called the great equator.

Supporting equatorial cross-section in the Earth's lithosphere is located in the crust by minor compressional strike-slip systems.

Equatorial orogens

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Equatorial orogens (EORs) are orogenic belts that develop along the equator. They are characterized by a high degree of symmetry about the equator. They are formed by the collision of tectonic plates that are moving towards each other along the equator. They are formed by the collision of tectonic plates that are moving towards each other along the equator.

I developed his ideas (Strutinski, 1994), by suggesting a plate-tectonic model, which preserved its equatorial position, leading to the development of successive orogenic cycles in the polar axis region.

Two opposing theories

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Two opposing theories: Carey's (1982) and Holmes' (1944) theories. Carey's theory suggests that the Earth's crust is divided into two main regions: the equatorial region and the polar region. Holmes' theory suggests that the Earth's crust is divided into two main regions: the equatorial region and the polar region.

The PT (continental) and the ET (equatorial) theories of subduction zones. The PT theory suggests that the Earth's crust is divided into two main regions: the equatorial region and the polar region. The ET theory suggests that the Earth's crust is divided into two main regions: the equatorial region and the polar region.

Characteristics of equatorial orogens

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These facts clearly suggest that under great orogens appear equatorial flow is horizontal and oriented along the strike. In the orogenic region this flow guides and channels subduction of the crust. This leads to the development of equatorial orogens. This leads to the development of equatorial orogens.

Preamble. Analysis of seismic anisotropy data has shown that the motion direction within the mantle directly beneath Wadati-Benioff zones is mostly at right angles to that implied by the subduction model. This suggests that the mantle, instead of migrating downdip together with the 'slab', creeps horizontally, probably as large currents whose directions are witnessed at the surface by the trend of deep-sea trenches. Different findings of the last ninety years which usually went unnoticed because they do not match the Plate Tectonics Theory (PTT) are, however, in accordance with this horizontal creep of sublithospheric mantle currents and suggest an alternative geotectonic model.

Seismic anisotropy under trenches

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The same features that characterize equatorial orogens, affecting them to be global tectonic systems, are also distributed in the continental and island arcs that run mostly along the Pacific margin.

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The new approach

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The new approach: Assuming that the Earth's crust is divided into two main regions: the equatorial region and the polar region. This leads to the development of equatorial orogens. This leads to the development of equatorial orogens.

The ET (continental) and the ET (equatorial) theories of subduction zones. The PT theory suggests that the Earth's crust is divided into two main regions: the equatorial region and the polar region. The ET theory suggests that the Earth's crust is divided into two main regions: the equatorial region and the polar region.

Discussion and Outlook

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Conclusions: Interpreting older data in a new perspective. I come to a different view of subduction zones and orogenic structures consistently regarded as underthrusting/compression phenomena.

Instead of dealing with descending rigid plates, assume horizontal sub-lithospheric currents going both towards horizontal systems. On the western Pacific margin these occurred by bending and branching of an originally E-oriented zone (margin) towards the western system. The steady loop and the large-scale orogenic structures (Dakota, 2001) produced along the strike of these systems in analogy to slides on oceanic plates. The tectonic systems from the western border of north- and south America may be analogies of ECR being formed by reflection of the deep north-continental structure of the southeast creating Pacific upper mantle. Slabs in deep lithosphere, rocks and the southeast creep conceivably proceeded straight towards the Atlantic, creating the lower sub-lithosphere and scales into the eastern. The present-day aspect of the Alpine mountain Chain related from the left to right created probably from reworking of the upper mantle current due to dominating velocity and slanting by the Pacific return. The energy causing orogenic curves from internal deformation of the rocks (Strutinski, 1986; Strutinski, 1994), and is different to such tectonic system. Compression is only locally required (e.g. subduction). The orogenic of the new stage (which are not subject to discussion) the earth is growing (Carey, 1982) and earthquakes in the island-arc areas are triggered by pressure variation (Carey, 1982) released from the creeping mantle currents.

REFERENCES