1-Pac.Aus.plate boundary.jpg. Regional plate map of Pacific Australian plate boundary between Vanuatu and Louisville Seamounts and northern Kermadec Trench. Fig. 10.12.

2-VanuatuBathMap.gif. Vanuatu consists of two rows of islands with western row present only in N. Deep trench is present only in southern part, where there is only one row. Trench swings to ENE as Hunter Fracture Zone. Australia Plate to W includes New Caledonia (large black island) and smaller Loyalty Islands. In the northern part, where there are two rows, the D’Entrecasteaux Seamounts are colliding with the trench as a collision zone. Ref. Suckale, J., et al., 2005, GeoForschungsZentrum Potsdam Sci. Tech Report STR05/16.

3-Vanuatu to Tonga.gif. Focus on diffuse Hunter fracture zone, a trench-trench transform, which also includes the Vitiaz transform fault. The change from N end of Tonga subduction zone to Hunter fracture zone is called the Samoa corner. Fig. 10.12.

4-Solomons to Hunter bathy.jpg. Reentrant between Solomons and Vanuatu subduction zone. D’Entrecasteaux Ridge intersects Vanuatu subduction zone as a collision zone. At S end, broad curvature from Vanuatu to Hunter fracture zone suggests that the Hunter zone has elements of a subduction zone itself.

5-Hunter fz to Lau basin.jpg. Tonga subduction zone consists of the island arc, backarc volcanics, and intervening Lau basin, which is broader in its northern end. The two main islands of Fiji, Viti Levu and Vanua Levu, are at point where Lau basin and Hunter fracture zone end.

6-Fiji.tectonics.jpg. Tectonic map of region between Tonga subduction zone and Hunter fracture zone. Strong curvature at N end of Tonga subduction zone known as Samoa corner; note the Samoan islands farther north in Pacific Plate. An earthquake in the Samoa corner of the subduction zone resulted in extensive tsunami damage on Samoa.

7-Kermadec subduction zone.jpg. Kermadec subduction zone is S of intersection with Louisville Seamount Province. N of the Louisville, the arc (Tonga Ridge) is succeeded by the Lau Basin and Lau Ridge. S of the seamounts, the Kermadec arc is succeeded by the Havre trough and the Colville Ridge. These features continue S into the Bay of Plenty and onshore in the North Island of New Zealand. Fig. 10.12, 10.13.

8-Kermadec.detail.jpg. This shows how the marine part of the subduction zone continues onshore in the North Island of New Zealand. The subduction zone off New Zealand is called the Hikurangi Subduction Zone.

9-Southernmost Havre Trough.detail.jpg. This shows both the frontal arc and backarc, together with volcanoes within the Havre Trough. For place names, see Kermadec.detail.

10-North Island and adjacent bathy.jpg. Note change between Kermadec trench in N, where oceanic crust is being subducted, and Hikurangi trench opposite North Island, where subducting crust is shallower, and change to collision zone begins.

11-DEM and bathy of NZ.png. Hikurangi Trench swings toward shore S of Cook Strait. Plate boundary onshore is largely strike slip and is a transform to Alpine fault near west coast. Trench W of Fiordland, South Island is Puysegur Trench . High-standing offshore features include E-trending Chatham Rise off E coast and NW-trending Lord Howe Rise off W coast. Plate boundary is a subduction zone off the North Island but a collision zone off the South Island, where continental rocks of the Chatham Rise are colliding with continental rocks of Marlborough and the Canterbury Plains.

12-Plate tectonic DEM of NZ.jpg. This shows main plate-boundary features, including Marlborough and Alpine faults. Warmer colors: shallowest water.