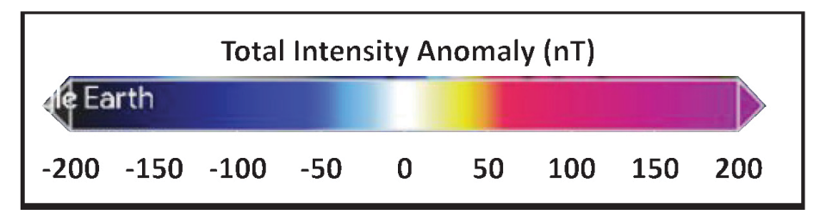
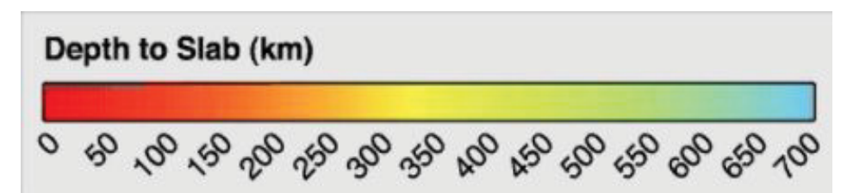
Earthquake Report: 2018.09.10
M 6.9 Kermadec (& USGS Seismicity 1918-2018 M ≥ 6.5)


Total Intensity Anomaly (nT)
Earth
-200 -150 -100 -50 0 50 100 150 200

Jason R. Patton
earthjay.com © 2018
USGS Google Earth


Depth to Slab (km)
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700

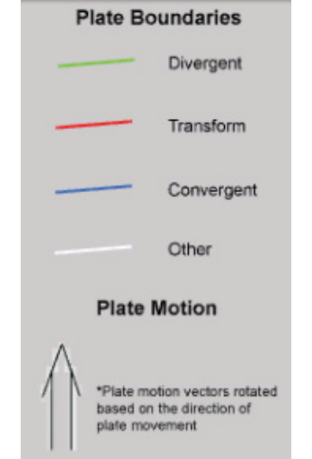
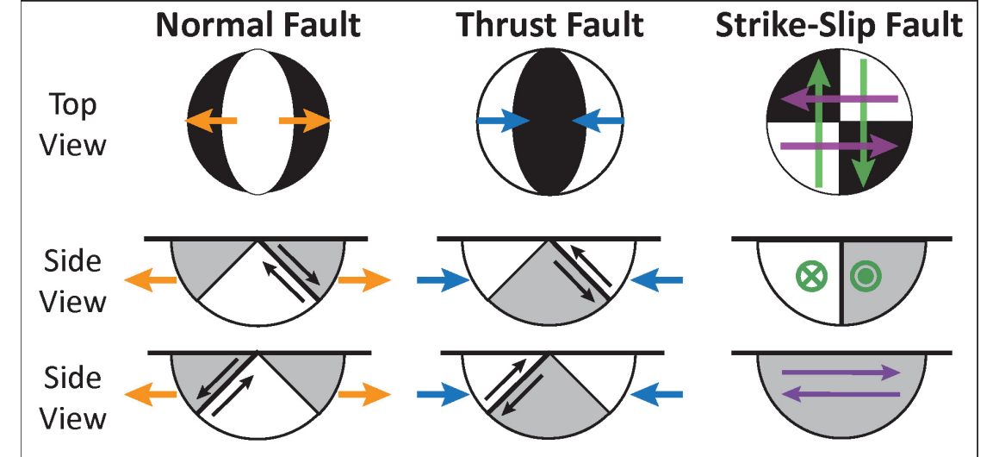
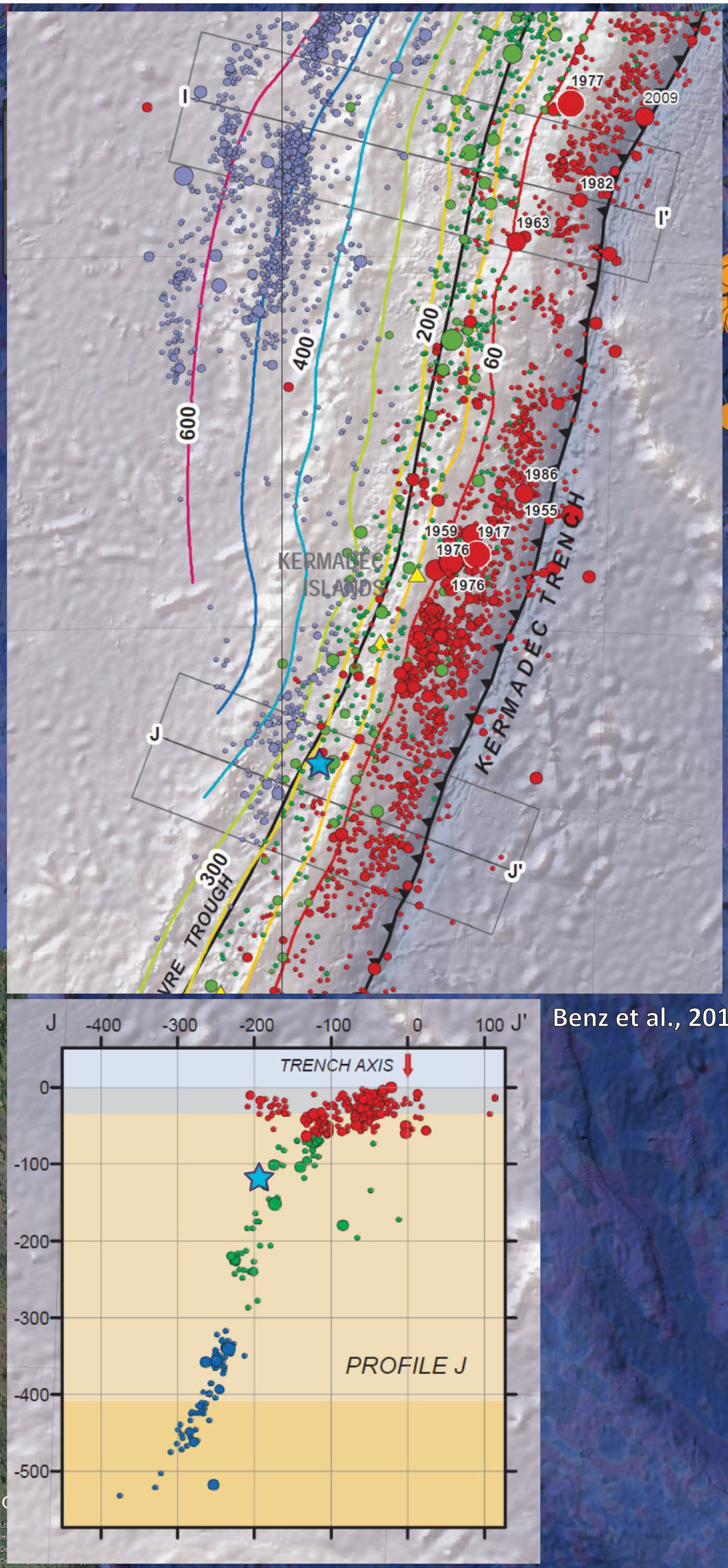


Plate Boundaries
Divergent
Transform
Convergent
Other
Plate Motion
*Plate motion vectors rotated based on the direction of plate movement

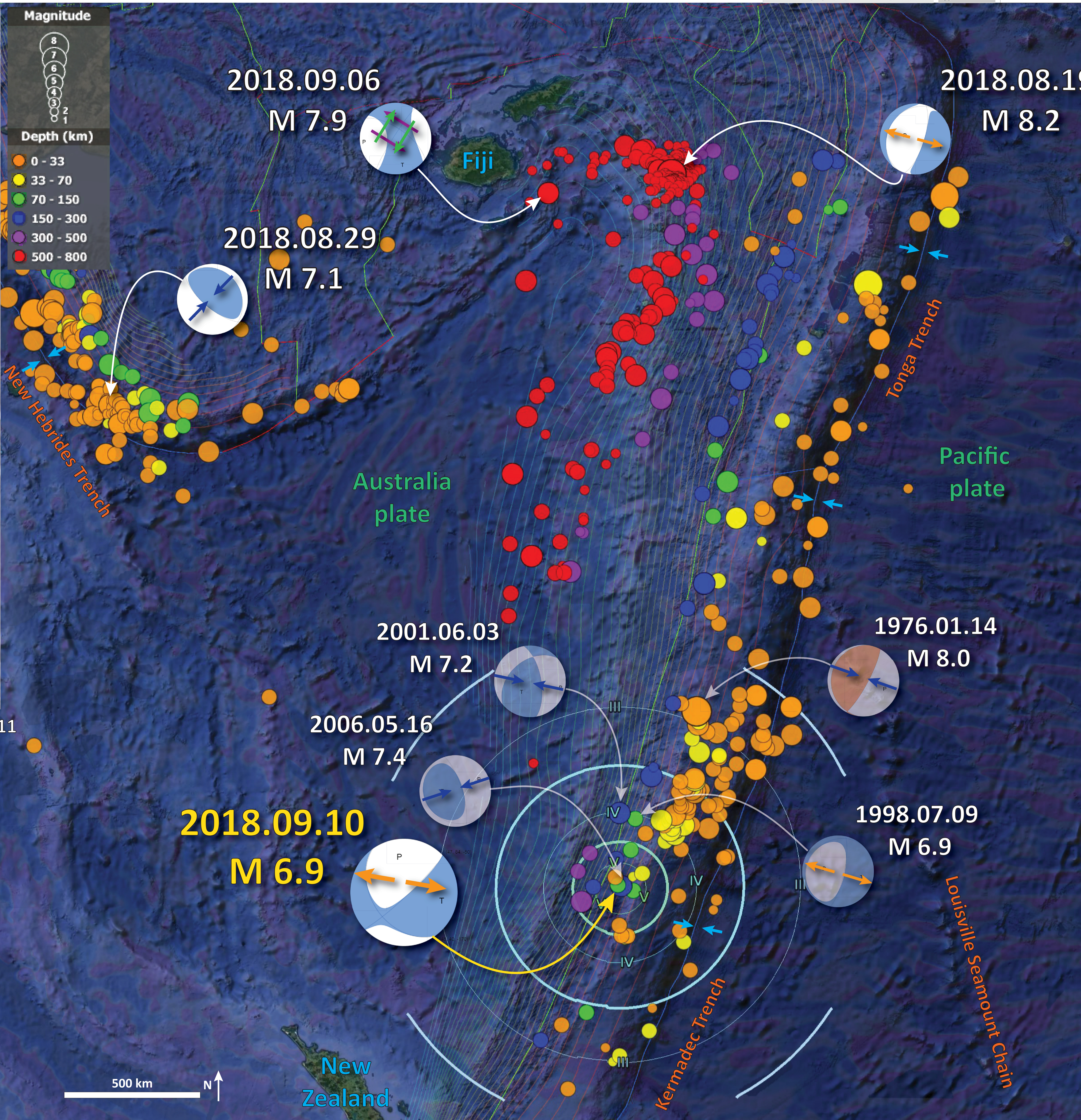

Normal Fault
Thrust Fault
Strike-Slip Fault
Top View
Side View
Side View

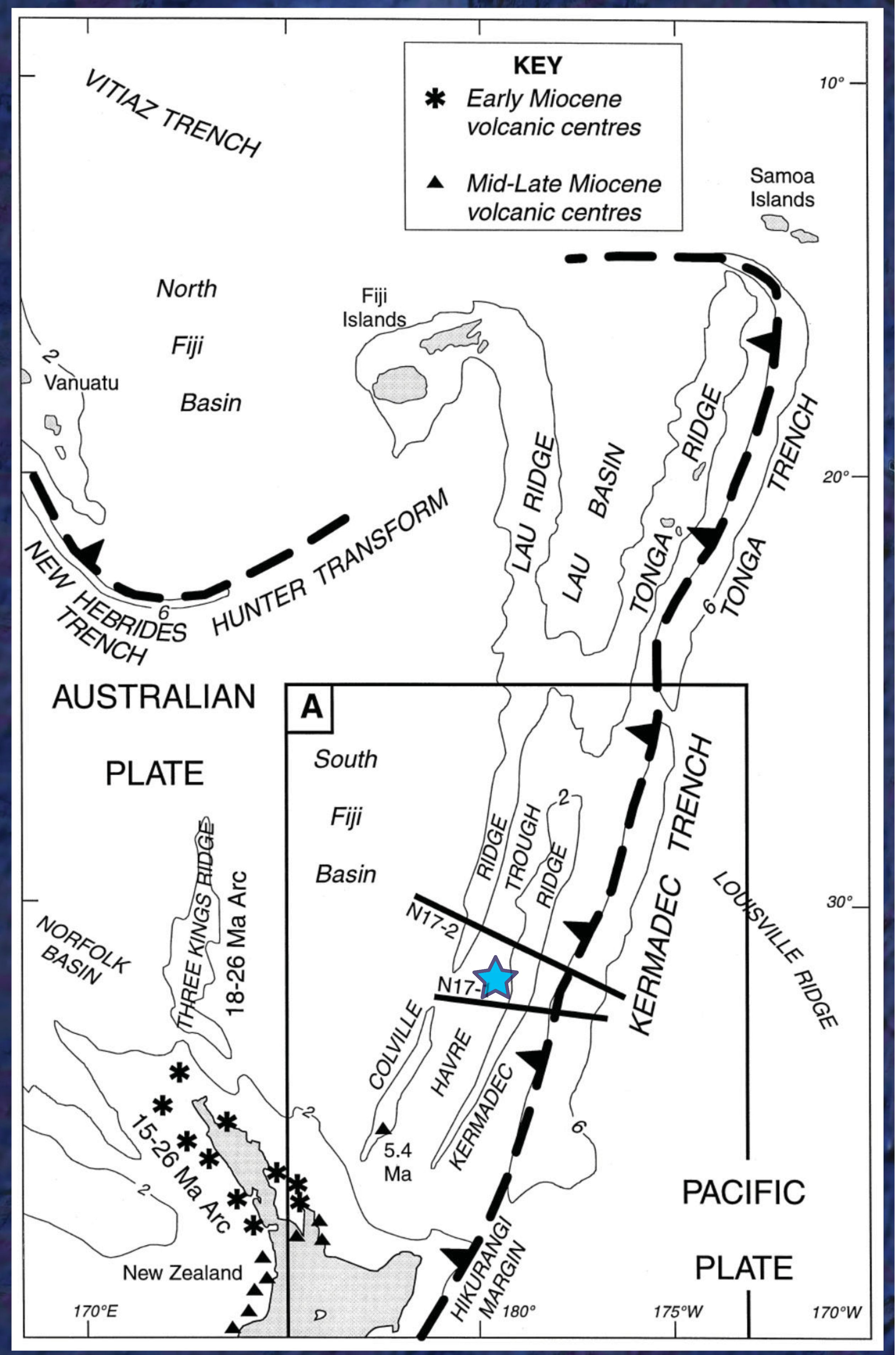
INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+
Shaking	Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
Damage	None	None	None	Very slight	Light	Moderate	Moderate/ heavy	Heavy	Very heavy
Peak Acc	<0.17	0.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
Peak Vel	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16 -31	31-60	60-116	>116

Peak Acc = Peak ground acceleration (g), Peak Vel = Peak ground velocity (cm/s)


I
I'
1977
2009
1982
1963
600
400
200
60
1986
1955
1959
1917
1976
1976
KERMADEC ISLANDS
KERMADEC TRENCH
J
J'
300
VRE TROUGH
J
-400 -300 -200 -100 0 100
J'
TRENCH AXIS
0
-100
-200
-300
-400
-500
PROFILE J

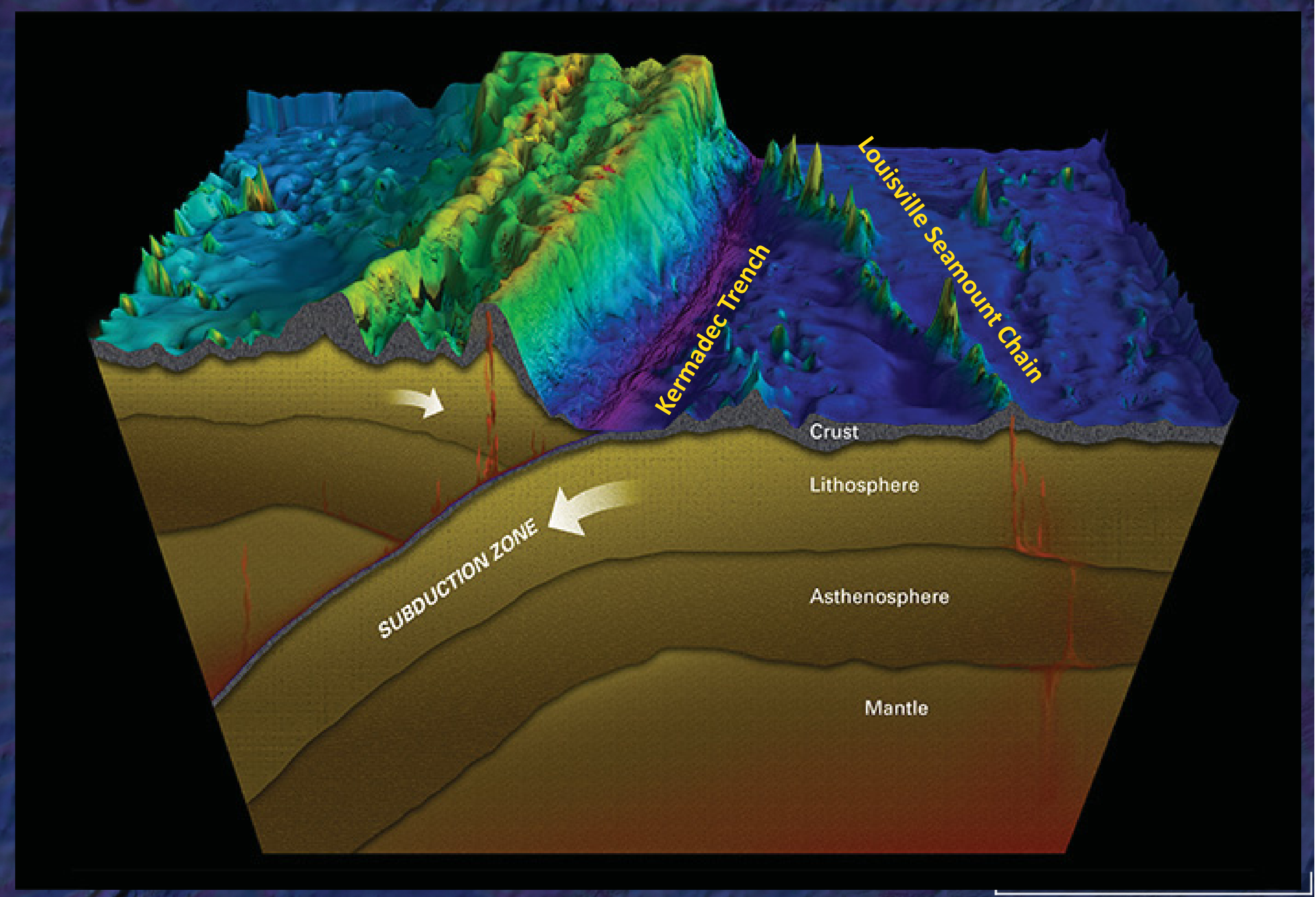
Benz et al., 2011


Magnitude
8
7
6
5
4
3
2
1
Depth (km)
0 - 33
33 - 70
70 - 150
150 - 300
300 - 500
500 - 800
2018.09.06
M 7.9
P
T
Fiji
2018.08.19
M 8.2
2018.08.29
M 7.1
New Hebrides Trench
Tonga Trench
Australia plate
Pacific plate
2001.06.03
M 7.2
1976.01.14
M 8.0
2006.05.16
M 7.4
III
IV
V
2018.09.10
M 6.9
P
T
1998.07.09
M 6.9
Kermadec Trench
Louisville Seamount Chain
New Zealand
500 km
N


KEY
✱ Early Miocene volcanic centres
▲ Mid-Late Miocene volcanic centres
10°
VITIAZ TRENCH
Samoa Islands
North Fiji Basin
Fiji Islands
2
Vanuatu
LAU RIDGE
LAU BASIN
TONGA RIDGE
TONGA TRENCH
20°
6
NEW HEBRIDES TRENCH
HUNTER TRANSFORM
AUSTRALIAN PLATE
A
South Fiji Basin
RIDGE
TROUGH
RIDGE
KERMADEC TRENCH
LOUISVILLE RIDGE
30°
NORFOLK BASIN
THREE KINGS RIDGE
18-26 Ma Arc
N17-2
N17-
COLVILLE
HAVRE
KERMADEC
5.4 Ma
15-26 Ma Arc
New Zealand
HIKURANGI MARGIN
PACIFIC PLATE
170°E
180°
175°W
170°W

Ballance et al., 1999

WHOI


Kermadec Trench
Louisville Seamount Chain
Crust
Lithosphere
SUBDUCTION ZONE
Asthenosphere
Mantle