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Off axis seismicity at 12°-14°N and the North-America, South America and African triple junction

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Seismicity along the MAR, monitored with the Autonomous Underwater Hydrophone (AUH) array, shows an anomalous band of events 70 km west of the axis (5.5 My-old crust), and between 11.9 and 14.2° N. Available focal mechanisms from teleseismic events along the off-axis band show extension directions consistent with North American AŸA›A›ƒ_sAªA›ƒ,ª□" South American relative plate motion as predicted by the REVEL plate model. Near the north end of this band events trend towards the axis, and in proximity to the axial seismic gap at 14° N. This gap coincides with the shallow and robust 14° N segment, which is also associated with a prominent *hotspot* geochemical anomaly. Axial focal mechanisms are consistent with spreading of the African (AF) and the NA or SA plates. We propose that the off-axis seismicity could be caused by an active westward jump and the formation of an incipient ridge, or by the presence of a microplate bounded by the axial and off-axis seismicity. Multibeam data show sediment ponds among irregular faults scarps locally covered by massifs that may correspond to recent volcanic edifices. This area also shows higher acoustic backscatter than nearby sedimented terrain. Additional data (magnetics, seafloor samples and direct observations is required to determine if there is recent volcanic activity associated with the intraplate seismicity. We speculate that the triple junction between the AF, NA and SA plates is close to the 14° N seismic gap, and is responsible for the large rotation of stress in the area recorded by the teleseismic events. We cannot constrain the position of the NA-SA plate boundary extending west towards the Caribbean subduction zone. If this boundary were continuous, we expect it to initiate at the southern end of the off-axis seismicity band, coinciding approximately with the trace of the Marathon FZ. Alternatively, the plate boundary may be diffuse along the corridor defined by the Fifteen-Twenty and the Marathon FZs, with the possible presence of a microplate at the axis.