

Hi Ken -

Thanks for the resend and for motivating this discussion.

A comment about your crustal magma chamber criterion: the t-phase swarms associated with the 1993 CoAxial and 1998 Axial intrusions/eruptions showed that dikes can propagate laterally for 50 km or more along the ridge axis. If I remember correctly, Carbotte/Detrick et al found evidence for magma beneath the axial high of CoAxial and the summit caldera of Axial, but dikes intruded from these zones into parts of the ridge where no magma was detected. Thus that was in our minds when we were evaluating the Endeavour swarm - it seemed possible that a dike could have been intruded from the Endeavour axial high northward along the ridge and then triggered intense seismicity in the overlap region.

To me the key problem is that, even if we know (or suspect) that a dike is being intruded along the ridge, it is difficult to tell from the seismicity alone if it has made it to the surface or not. I think this is true on land too (but of course there it is much easier to check). In the deep ocean, the only way to tell is to go out with a ship.

-Bill Chadwick