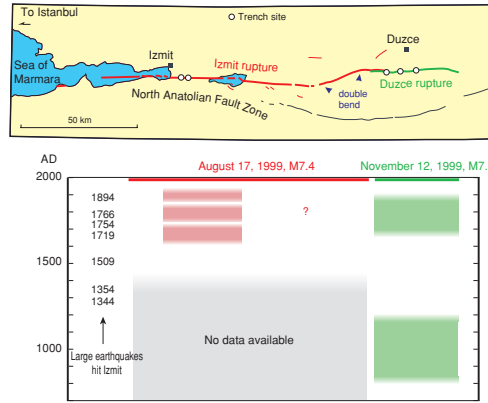


History of Large Earthquakes on the North Anatolian Fault

To identify one or multiple fault segment that corresponds to one large earthquake, we develop an evaluation technique. As a case study, we have been studying the North Anatolian fault, Turkey that produced 12 $M \geq 6.7$ earthquakes in the twentieth century. We excavated several trenches along the Izmit and Duzce segments that had produced large earthquakes in August and in November 1999, respectively. We then found that the recurrence intervals of the paleo-earthquakes on both faults are totally different. Thus, the boundary between two segments that characterizes a double-bend has worked as a persistent barrier to stop rupture propagation.



(upper panel) Distribution of the North Anatolian fault zone and surface ruptures due to the 1999 Izmit and Duzce earthquakes.
 (lower panel) History of large earthquakes produced by the Izmit and Duzce faults. Each box corresponds to one large historical earthquake.

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 AIST Today Vol. 3, No. 8
 (2003) 37