

# Primary Damage Caused by Niigata Chuetsu Earthquake

Reference

Date: October 23, 2005 (Saturday) at 17:56  
 Seismic center: East longitude 138 deg. 52 min. 12 sec.  
 North latitude 37 deg. 17 min. 18 sec.  
 Magnitude: 6.8. (Level: 7 on the Japanese Intensity Scale)

Peak ground acceleration: JR seismometer detected 846 gals (at the Kawaguchi Substation on the Joetsu Shinkansen)  
 Final stopping position of derailed Shinkansen Toki 325: 207.828 km from Joetsu Shinkansen Omiya base point



Embankment Collapse (Shin-Etsu Line)



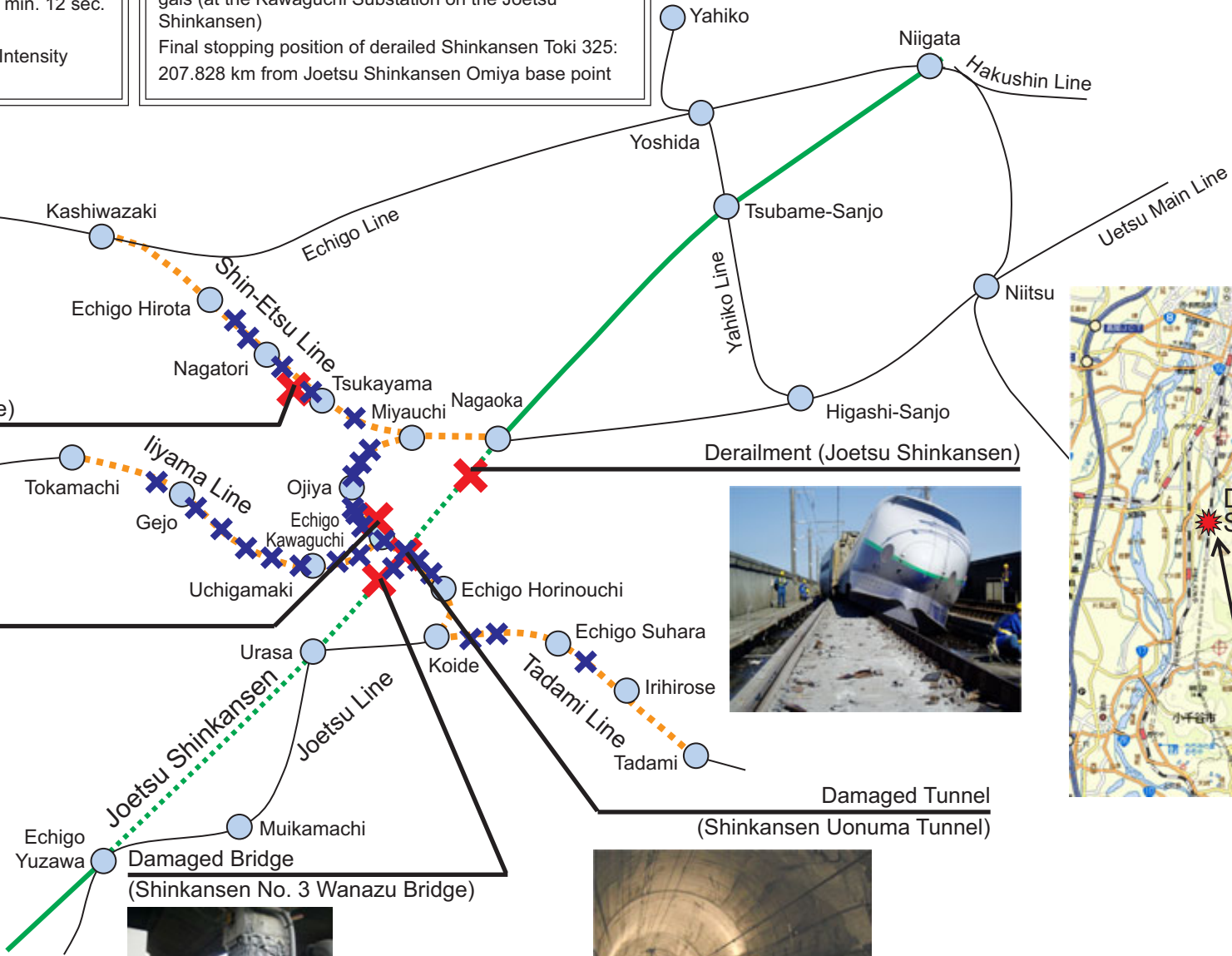
Embankment Collapse (Joetsu Line)



Derailment (Joetsu Shinkansen)



Nagaoka Station  
 Derailment Site  
 Approximately 10 km  
 Epicenter



Damaged Bridge (Shinkansen No. 3 Wanazu Bridge)



Damaged Tunnel (Shinkansen Uonuma Tunnel)

Sections where operations were stopped