

## Development of 4D Earthquake Visualizer - To deepen the understanding of Kumamoto Earthquake -

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Japan is a country located at the plate convergence zone with frequent earthquakes. Even after 3.11 Higashi-Nihon earthquake in 2011, several M6-class earthquakes such as Kumamoto, Tottori and recently Fukushima have occurred in and around Japan, seismology has been the field of broad interest.

Since earthquake is a phenomenon caused by the slip with fracture along the underground fault plane, it is desirable to understand the fault plane in three dimensions. Although a single "X" mark has been the famous epicenter expression, fault planes of earthquakes actually have extensive, finite area. For instance, 3.11 fault plane is estimated to be ~100,000 km<sup>2</sup> (~500 km north-south and ~200 km east-west), the media reported as if one "X" mark near Sendai was the point where the event took place.

There have been strong needs to visualize invisible underground fault such as touch UI to intuitively understand earthquakes in both the research and media front, but technological immaturity of hardware and software hindered such development. For this purpose, expensive, download-to-local specialized software has required sophisticated software/coding skills.

To resolve these issues, LiVEARTH, Inc., the startup with cutting-the-edge visualization technology partnered with Kawai Group of Global Seismology Laboratory to develop innovative 4D earthquake visualization "shingen".

In practice, we used "shingen" in earth and planetary science class of the University of Tokyo on July 4/5th, 2016, and received various well thought-out research reports from students.

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