

## **Supra-Ignimbrite Channel-Fill Sedimentation of the Towada-Hachinohe (15Ka) Tephra Produced from the Towada Caldera, NE Japan**

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After three large-scale eruptions occurred of the Towada Volcano, located in the northern part of the Northeast Honshu Arc, a gigantic crater lake was formed. Voluminous ash-fall and pyroclastic flow deposits are thought to be caused by caldera forming large-scale eruptions; and low-relief landforms around calderas, called pyroclastic flow plateaus, are thought to be formed by large volumes of pyroclastic flow deposits. A tephra, which formed during the third eruption of the Towada Volcano, is composed of ash-fall and pyroclastic flow deposits, and is called Towada-Hachinohe Tephra (To-H). This tephra is distributed thickly and widely. We can decode a complete eruption episode during the 15Ka in this tephra as a lahar process from supra-ignimbrite deposits. I was able to observe and decode deep gully-like structures filled by debris flow and stream flow deposits with slump block and wide channel structures filled by debris flow and stream flow deposits above the ignimbrite. It was revealed that these deposits are covered by hyper-concentrated flow deposits and fluvial deposits, and they are characterized by a braided river system. This study has also clarified that these lithostratigraphic changes of the supra-ignimbrite deposits indicate that the channel-fill sedimentary system occurred as an initial event during a lahar process that occurred just after emplacement of pyroclastic flow deposits. Furthermore, this study revealed that in an initial stage of the lahar process, conspicuous erosion and slope failure have dominantly taken place and that resedimentation of pyroclastic flow deposits commonly occurred on the ignimbrite plateau. In conclusion, I could clarify that deep and broad-based shaped channel structures indicated that the erosional processes act downward and later changed to lateral and that these directional changes of the erosion caused slump blocks to derive from existing deposits or ignimbrite as channel wall deposits.