

## U-Pb Geochronology of two Devonian Large Igneous Provinces, Siberian Craton

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Large Igneous Provinces (LIPs) have been considered as drivers of large scale climatic change<sup>[1]</sup> and are associated with several ore deposit types, such as magmatic Cu-Ni-PGE deposits and kimberlites. This study applies high precision U-Pb ID-TIMS (isotope dilution thermal ionization mass spectrometry) geochronology to intrusive rocks from the Yakutsk-Vilui and Altai-Sayan LIPs to improve our understanding of the timing and duration of large scale volcanism in Siberia during the Devonian. The Altai-Sayan LIP is located in the Central Asian Orogenic Belt in Siberia.<sup>[2]</sup> It includes mafic to intermediate volcanic rocks as well as intermediate to felsic intrusive bodies.<sup>[2]</sup> Timing of the Altai-Sayan LIP is poorly constrained, with an approximate age of 408-393 Ma.<sup>[3]</sup> The Yakutsk-Vilui LIP is located at the eastern edge of the Siberian craton and is represented by a rift system and radiating dyke swarm.<sup>[2]</sup> It is associated with many diamondiferous kimberlites and is of some economic importance.<sup>[2]</sup> Previous work has reported an age of 370-360 Ma.<sup>[4]</sup> The Late Devonian Mass Extinction event represents one of the greatest declines in biodiversity in the Phanerozoic. Emplacement of the Yakutsk-Vilui (Y-V) traps has long been suspected of triggering some of the anoxic events that represent this extinction in the marine record.<sup>[5]</sup> The Kellwasser anoxic event approximates the Frasnian-Famennian (F/F) boundary (GSSP Coumiac quarry, France) within the late Devonian, and has been inconclusively linked to Y-V magmatism. Our results from U-Pb CA-ID-TIMS dating methods on intrusive rocks of the Y-V LIP approximate the reported F/F boundary age of  $371.86 \pm 0.08$ Ma.<sup>[6]</sup>

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