

before the 2014 rifting event, Grímsvötn's shallow magma chamber was already at the critical stage of rupturing and could have erupted in 2015. However, no eruption has occurred up to now, suggesting that a transient event may have happened and postponed Grímsvötn's supposed eruption.

Using EnKF, we show that the basal magma inflow rate at Grímsvötn dropped ~ 10 months before the Bárðarbunga rifting event. We interpret the loss of at least 0.016 cu km in the magma supply of Grímsvötn as a consequence of magma accumulation beneath Bárðarbunga and subsequent feeding of the Holuhraun eruption. We therefore demonstrate that, in addition to predicting volcanic eruptions, sequential assimilation of geodetic data has a unique potential to give insights into volcanic system roots.