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# Subglacial plinian eruption; deposits and deposition.

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Subglacial plinian eruptions have not been voluminous in the volcanological literature and never observed with modern technology. Several subglacial plinian eruptions have occurred in late-Pleistocene to Holocene time in Iceland. The older eruptions occurred at the veining stage of the last ice age and leave a distinct pattern of deposition in Iceland. The younger eruptions ($<$10 kyr) are limited to the current glacier in Iceland, three of which are most important, Snæfellsjökull, Mýrdalsjökull and Öræfajökull. These eruption deposits are better preserved, allowing for sequential study of the deposits and thus eruption mechanics. The historic eruption of Öræfajökull in 1362 AD is valuable, since there exist several contemporary accounts in the Icelandic annals of that eruption. Deposition of subglacial plinian eruptions in Iceland is characterized by absence of deposits in areas which where occupied by the glacier at the time of eruption. Such is the case of the eruption in Myrdalsjökull and Askja, dating back some 12 kyr and 10 kyr respectively. Near vent stratigraphy is best studied at Öræfajökull, in the deposits from 1362. The depositional sequence shows that at the beginning fragmentation is high, expressed by fine- to coarse ash. However, in the upper parts of the profile coarse lapilli and pumice bombs dominate. Extending radial from the volcano are water diluted pyroclastic flow deposits. The subglacial plinian eruption of Las Cumbres in Mexico (some 17-20 kyr BP) shows same distribution pattern of the deposits as observed in Iceland, as well as layering of the deposits.