

## 2. Study site and methods

The ice core was drilled in September 2007 at the top of the Grigoriev Ice Cap ( $41^{\circ}58'33''\text{N}$ ,  $77^{\circ}54'48''\text{E}$ ) in Kyrgyzstan ([Fig. 1](#)), with an electro mechanical drill manufactured by Geo Tecs Co., Japan. The barrel size of the drill was 135 cm in length and 9.5 cm in inner diameter. The detailed specification of the drill was described in [Takeuchi et al. \(2004\)](#). The drill reached bottom of the ice cap at a