GEOLOGICAL MAP OF CARLINGFORD IGNEOUS COMPLEX EIMEAR MCKENNA | 117339523

B) Geological map of Carlingford Igneous Complex



A) Location Map of 1) NE Ireland 2) Carlingford Peninsula and **Investigated Area**



F) Raman Map of Gabbro Unit 2





G) Abstract

The Carlingford Igneous Complex (CIC), Co. Louth, is part of the British-Irish Palaeogene Igneous Province1, is characterised by bimodal mafic/felsic magmatism, a layered gabbro intrusion2, and a cone-sheet swarm.

The main purpose of this fieldwork was to provide a detailed geological map showing the spatial distribution of each lithology, understand the construction of the complex and produce a 3-dimensional model.

Petrographical investigations (Raman Spectroscopy Mapping) were used to detail the accessory mineral budget as well as identify mineral phases of the gabbro layers. From the combination of data it became possible to produce a series of cross-sections and an interpretation of the geological history. The intrusion sequence deduced from mapping is (1) granite, (2) gabbro, (3) cone-sheet swarm, however abundant field evidence shows the co-existence of mafic and felsic magmas since multiple granite injections occurred during the emplacement of gabbro. Four distinct gabbro units have been identified. Within each unit there is evidence for modal and rhythmic layering, with each unit being defined by an olivine and augite-rich base and a plagioclaserich top. The inward-dipping mafic sheets form a cone-sheet geometry and were emplaced from varying sections of a centrally located stratified magma chamber.