Dataset for

**FRACTURE TOPOLOGY IN MAFIC FORMATIONS:**

**IMPLICATIONS FOR Geological carbon Storage**

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**List of notations**

|  |  |
| --- | --- |
| bc [m] | Column-bounding fracture aperture |
| dc [m] | Block size |
| d­ [m] | Fracture spacing (e= entablature, n= column-normal) |
| v [m/s] | Flow velocity |
| z [m] | Depth |

**Table 1**. Basaltic formations analyzed in this study

|  |  |  |
| --- | --- | --- |
| **Formation** | **Location** | **Characteristics** |
| Reynisfjara black beach1,2,7 | Iceland | Well-defined polygonal columns |
| Stuðlagil Canyon7 | Iceland | Vertical columns and entablature |
| Giant’s causeway7 | Ireland | Extensive and well-pronounced hexagonal columns |
| Staffa7 | Scotland | Well-developed columns and entablature |
| Ardtun7 | Scotland | Polygonal columns with varying orientations |
| Berwick-upon-Tweed1 | England | Contact fractures between thin lava flows with no columnar structure |
| Garni Gorge7 | Armenia | Distinctive basalt columns |
| Wadi Zee1 | Saudi Arabia | Fractured vesicular basalt |
| Harrat Al Fatih3 | Saudi Arabia | Fractured vesicular basalt |
| Snake River Plain4,5,6 | United States | Colonnades separated by single entablature |
| Columbia River Basalt Group7 | United States | Thick lava flows; well-formed hexagonal columns |

Sources: 1Field trips as part of this study; 2Schneider-Vos (2020); 3Sonbul and Mesaed (2017); 4Faybishenko et al. (2000); 5Lore et al. (2001); 6Schaefer and Kattenhorn (2004); 7Photos found on the internet – Multiple sources.

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