## Data Archive Information

Manuscript Title

“Constraints on the magmatic system beneath Mt. Paektu Volcano (Changbaishan) from magnetotellurics”

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This entry contains the data from 53 MT soundings collected over the south-eastern part of Mt. Paektu, and the other relevant data files.

The locations of MT sites (in UTM with base meridian of E129 degree) are given below

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Site Name | UtmX(m) | UtmY(m) | Elevation(m) |
| 1 | 01-01 | 426607.6 | 4649631 | 2221 |
| 2 | 01-05 | 427139.8 | 4651264 | 2147 |
| 3 | 01-06 | 427332.3 | 4651869 | 2127 |
| 4 | 03-02 | 425676.4 | 4652321 | 2298 |
| 5 | 04-02 | 423904 | 4651773 | 2205 |
| 6 | 05-03 | 427145 | 4648636 | 2187 |
| 7 | 14-01 | 427350.7 | 4649398 | 2202 |
| 8 | 14-02 | 427883.9 | 4649106 | 2147 |
| 9 | 14-03 | 429190.1 | 4647871 | 2141 |
| 10 | 14-07 | 442648.5 | 4628967 | 1403 |
| 11 | 14-13 | 427508.8 | 4635100 | 1535 |
| 12 | 14-14 | 427506.2 | 4635520 | 1559 |
| 13 | 50-01 | 426268.6 | 4651541 | 2220 |
| 14 | 50-02 | 426566 | 4651834 | 2161 |
| 15 | 50-03 | 426874.9 | 4652118 | 2108 |
| 16 | 51-01 | 426535.2 | 4648636 | 2235 |
| 17 | 51-02 | 426473.4 | 4649333 | 2256 |
| 18 | 51-06 | 427253.8 | 4651836 | 2126 |
| 19 | 51-07 | 427441.2 | 4652171 | 2117 |
| 20 | 52-01 | 427354.8 | 4650022 | 2192 |
| 21 | 52-02 | 427374.7 | 4650382 | 2164 |
| 22 | 52-03 | 427520.5 | 4650924 | 2114 |
| 23 | 52-04 | 427633.1 | 4651360 | 2114 |
| 24 | 52-05 | 427676.1 | 4651745 | 2105 |
| 25 | 52-06 | 427742.2 | 4652137 | 2093 |
| 26 | 53-01 | 428026.2 | 4650197 | 2167 |
| 27 | 53-02 | 428034.7 | 4651039 | 2075 |
| 28 | 53-03 | 428240.7 | 4651838 | 2045 |
| 29 | 53-04 | 428274.8 | 4652255 | 2042 |
| 30 | 54-01 | 427052.6 | 4648596 | 2191 |
| 31 | 54-02 | 426176.9 | 4648701 | 2285 |
| 32 | 54-03 | 424837.7 | 4648937 | 2485 |
| 33 | 54-04 | 424470.6 | 4649250 | 2551 |
| 34 | 54-05 | 424105 | 4649491 | 2637 |
| 35 | 54-06 | 423917.2 | 4651282 | 2202 |
| 36 | 55806 | 428388.1 | 4648682 | 2166 |
| 37 | 55809 | 425132.7 | 4646140 | 2061 |
| 38 | 55814 | 438175.7 | 4645317 | 1612 |
| 39 | 55824 | 438168.8 | 4645320 | 1598 |
| 40 | 55901 | 447963.9 | 4618353 | 1304 |
| 41 | 55903 | 443604 | 4616684 | 1087 |
| 42 | 55907 | 429144.2 | 4647187 | 2117 |
| 43 | 55908 | 424107.4 | 4649497 | 2639 |
| 44 | 62806 | 427235.8 | 4648737 | 2178 |
| 45 | 62809 | 425587 | 4648852 | 2337 |
| 46 | 62811 | 423649.4 | 4650992 | 2205 |
| 47 | 62814 | 433022.5 | 4646209 | 1888 |
| 48 | 62824 | 433022.5 | 4646209 | 1888 |
| 49 | 62830 | 447871.8 | 4616821 | 1299 |
| 50 | 62901 | 447396.7 | 4617898 | 1242 |
| 51 | 62903 | 445855.8 | 4617666 | 1171 |
| 52 | 62907 | 430204.3 | 4646390 | 2010 |
| 53 | 62908 | 427441.2 | 4652171 | 2118 |

### Usage

Users of the Mt. Paektu MT dataset are required to reference the accompanying paper and express acknowledgements to the authors of this paper, in his/her publication (including proceedings)

The address of corresponding and 1st authors are as follows:

Prof. James O. S. Hammond

School of Natural Sciences, Birkbeck, University of London, London WC1E 7HX, UK

email: [james.hammond@bbk.ac.uk)](mailto:james.hammond@bbk.ac.uk)),

Prof. Kim Gang Sop

Kim Chaek University of Technology

email: Kgs6673@star-co.net.kp

DATE: 19/Jan/2024

### Generals

The following information can be found in the data repository:

Table 1. Description subfolder structure

|  |  |  |
| --- | --- | --- |
| Subfolder/file | Description | Note |
| EDI\_Data\_Files | MT Data files in EDI format , with unedited and unrotated Transfer Functions. See section 3 for details. | 53 MT sites |
| Metadata | Excel spreadsheet showing the locations of MT sites (in UTM with base meridian of E129 degree) | 1 file |
| Models | Files of Resistivity models, along with Matlab script to read them. | 13 files |

### Data

MT data and relevant information are organized in the following subfolders.

#### “EDI” folder

This folder contains a dataset of 53 MT stations, collected nearby Mt. Paektu volcano during 2016-2023. 44 sites are densely located nearby the volcano, the remaining 9 sites, are located from the volcano to Samjiyon, and Mt. south Potae (for whole inversion), DPRK of Korea (see paper for details). The minimum and maximum distances between neighboring sites are 83 m and 5230 m, respectively. MT data are acquired using a 5-channel receiver, three magnetic induction sensors, and two electrical dipoles with Pb-PbCl2 electrodes, manufactured in Kim Chaek University of Technology (KUT). Data acquisition at each site was performed for 2 days on average, and are remotely referenced with a distant site with other similar instruments (Pyongwon observatory, 39°18′23″N, 125°35′35″E), which is located about 360 km south-west away from the volcano summit. All data at field sites and remote site were sampled at three sampling frequencies 2400 Hz, 240 Hz, and 15 Hz.

The acquisition co-ordinate system was with "X" aligned northward, and "Y" aligned along eastward. The EDI (Electrical Data Interchange: “The Society of Exploration Geophysicists, MT / EMAP Data Interchange Standard”) data are in that coordinate system. The station coordinates are given in the header of each file.

#### 1.3 Model Folder

This folder contains the files with the inverted resistivity models (Table 1). Resistivity models are provided as two ASCII text files with extension \*.jhm. Also provided is a MatLab function “LoadmodelFile.m” that can read the files into geographical coordinates.

Table 2. Description of the Model Folder

|  |  |
| --- | --- |
| File | Description |
| ResistivityModel\_small\_data.jhm | File with inverted resistivity model with 44 MT sites information in geographic coordinates for the small inversion (as shown in Figure 4). The format is explained in the function “LoadmodelFile.m” |
| ResistivityModel\_all\_data.jhm | File with inverted resistivity model with 53 MT for the whole inversion using the starting model, based on the small inversion result (as shown in Figures 8 and 10). The format is explained in the function “LoadmodelFile.m” |
| Loadmodelfile.m | A MATLAB function that can read in the .jhm model files. See the script for details of usage. |