**I-GUIDE DATA CARD**

The I-GUIDE Data Card is an easy-to-use tool that will allow you to create documentation for each dataset that you create or use in a project.

Using this tool will help facilitate transparency and reproducibility of your project. It will also help you comply with data management and sharing policies of journals, funding agencies, and universities.

The Data Card applies to:

1. **Secondary Datasets**: Data sourced from external repositories or other researchers;
2. **Primary Datasets**:
   * Data collected through experiments, fieldwork, or user-generated sources;
   * Data obtained via web scraping, API collection, or similar automated means.

**Data Card Attribution**

This Data Card template is an adapted version of materials originally developed by Google’s *Data Cards Playbook*, available at https://pair-code.github.io/datacardsplaybook/.  
Adaptations have been made to support the I-GUIDE platform, with a focus on simplifying structure, tailoring prompts for geospatial data, and aligning with ethical and FAIR data practices in scientific research.

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A logo with text on it

AI-generated content may be incorrect.

* + 1. **BASIC INFORMATION**

| Data Card ID Number | *DC\_Embedding* |
| --- | --- |
| Dataset Name | Google AlphaEarth Satellite Embedding |
| Dataset Version | V1 released on July 30, 2025 |
| Persistent Identifier | [doi:10.48550/arXiv.2507.22291](https://doi.org/10.48550/arXiv.2507.22291) |
| Outputs Supported | Brown, C. F., Kazmierski, M. R., Pasquarella, V J., Rucklidge, W. J., Samsikova, M., Zhang, C., Shelhamer, E., Lahera, E., Wiles, O., Ilyushchenko, S., Gorelick, N., Zhang, L. L., Alj, S., Schechter, E., Askay, S., Guinan, O., Moore, R., Boukouvalas, A., & Kohli, P.(2025). AlphaEarth Foundations: An embedding field model for accurate and efficient global mapping from sparse label data. arXiv preprint arXiv.2507.22291. [doi:10.48550/arXiv.2507.22291](https://doi.org/10.48550/arXiv.2507.22291) |
| Data Card Author | Brown, C. F., Kazmierski, M. R., Pasquarella, V J., Rucklidge, W. J., Samsikova, M., Zhang, C., Shelhamer, E., Lahera, E., Wiles, O., Ilyushchenko, S., Gorelick, N., Zhang, L. L., Alj, S., Schechter, E., Askay, S., Guinan, O., Moore, R., Boukouvalas, A., & Kohli, P.(2025) |

* + 1. **DATASET OVERVIEW**

| Dataset Owners and Publishers | Google Earth Engine; Google DeepMind |
| --- | --- |
| Source and Acquisition Method | Secondary dataset (from external source) |
| Terms of Use, or Data Sharing Agreement | This dataset is licensed under [CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/) and requires the following attribution text: "This dataset is produced by Google and Google DeepMind." |
| Storage Location | Repository: [Earth Engine Data Catalog](https://developers.google.com/earth-engine/datasets) |
| Access Control Policies | Open |

1. **DATASET CHARACTERISTICS**

| Data Subjects | Other: analysis-ready collection of learned geospatial embeddings. |
| --- | --- |
| Dataset Size | *(File size, number of records, variables, resolution etc.)* |
| Spatial Data | Yes  If “Yes”:  Coordinate Reference System (CRS): *(If applicable)*  Spatial Resolution:10-meter  Temporal Resolution: *Annual (2017-2024)* |
| Data Modality | Image |
| Variables | The collection is composed of images covering approximately 163,840 meters by 163,840 meters, and each image has 64 bands {A00, A01, …, A63}, one for each axis of the 64D embedding space. |

1. **PROVENANCE**

| Methods of Collection | API |
| --- | --- |
| More About Methods | *All data* |
| Tools and Libraries Used | *Google Earth Engine, geemap* |
| Collection Policies (if data collected using web scraping or other digital methods) | *NA* |

1. **SENSITIVE DATA**

| Human Subject Identifiability | None |
| --- | --- |
| Other Sensitivity Factors | None |
| Measures Taken to Handle Sensitive Data | NA |
| Demographic Variables Represented in Dataset | None |
| Correlation with Demographic Variables | None |
| Dataset Representativeness | NA |
| Information About Ethical Oversight | Not subject to Institutional Review Board (IRB) approval: *(Briefly explain why not)* |
| Informed Consent Processes | NA |

1. **TRANSFORMATIONS**

| Transformations Applied | Resampling to 500 m |
| --- | --- |
| Description of Transformations | Mean resampling |

1. **SUITABLE AND UNSUITABLE USES OF DATASET**

| Suitable Uses | Various clustering, object detection, and remote sensing tasks |
| --- | --- |
| Unsuitable Uses | Unknown |

1. **ANNOTATION TASKS (only complete if dataset includes labeled data)**

| Types of Annotation Performed | NA |
| --- | --- |
| Description of Annotations | NA |

1. **APPLICATIONS AND BENCHMARKS (only complete if dataset used for AI purposes)**

| Relevant AI Model(s) | *Random Forest, XGBoost, TabNet,* ConvLSTM |
| --- | --- |
| Use in AI | Training |
| Key AI Tasks | *Fire risk mapping and fire progression* |
| Evaluation Results |  |

**APPENDIX: VARIABLES (see “Variables” field in Section 2, “Dataset Characteristics”; add extra rows if necessary)**

| **VARIABLE NAME** | **BRIEF DESCRIPTION** |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A00 | Dimensionless | -1 | 1 | meters | The 0th axis of the embedding vector. |
| A01 | Dimensionless | -1 | 1 | meters | The 1st axis of the embedding vector. |
| A02 | Dimensionless | -1 | 1 | meters | The 2nd axis of the embedding vector. |
| A03 | Dimensionless | -1 | 1 | meters | The 3rd axis of the embedding vector. |
| A04 | Dimensionless | -1 | 1 | meters | The 4th axis of the embedding vector. |
| A05 | Dimensionless | -1 | 1 | meters | The 5th axis of the embedding vector. |
| A06 | Dimensionless | -1 | 1 | meters | The 6th axis of the embedding vector. |
| A07 | Dimensionless | -1 | 1 | meters | The 7th axis of the embedding vector. |
| A08 | Dimensionless | -1 | 1 | meters | The 8th axis of the embedding vector. |
| A09 | Dimensionless | -1 | 1 | meters | The 9th axis of the embedding vector. |
| A10 | Dimensionless | -1 | 1 | meters | The 10th axis of the embedding vector. |
| A11 | Dimensionless | -1 | 1 | meters | The 11th axis of the embedding vector. |
| A12 | Dimensionless | -1 | 1 | meters | The 12th axis of the embedding vector. |
| A13 | Dimensionless | -1 | 1 | meters | The 13th axis of the embedding vector. |
| A14 | Dimensionless | -1 | 1 | meters | The 14th axis of the embedding vector. |
| A15 | Dimensionless | -1 | 1 | meters | The 15th axis of the embedding vector. |
| A16 | Dimensionless | -1 | 1 | meters | The 16th axis of the embedding vector. |
| A17 | Dimensionless | -1 | 1 | meters | The 17th axis of the embedding vector. |
| A18 | Dimensionless | -1 | 1 | meters | The 18th axis of the embedding vector. |
| A19 | Dimensionless | -1 | 1 | meters | The 19th axis of the embedding vector. |
| A20 | Dimensionless | -1 | 1 | meters | The 20th axis of the embedding vector. |
| A21 | Dimensionless | -1 | 1 | meters | The 21st axis of the embedding vector. |
| A22 | Dimensionless | -1 | 1 | meters | The 22nd axis of the embedding vector. |
| A23 | Dimensionless | -1 | 1 | meters | The 23rd axis of the embedding vector. |
| A24 | Dimensionless | -1 | 1 | meters | The 24th axis of the embedding vector. |
| A25 | Dimensionless | -1 | 1 | meters | The 25th axis of the embedding vector. |
| A26 | Dimensionless | -1 | 1 | meters | The 26th axis of the embedding vector. |
| A27 | Dimensionless | -1 | 1 | meters | The 27th axis of the embedding vector. |
| A28 | Dimensionless | -1 | 1 | meters | The 28th axis of the embedding vector. |
| A29 | Dimensionless | -1 | 1 | meters | The 29th axis of the embedding vector. |
| A30 | Dimensionless | -1 | 1 | meters | The 30th axis of the embedding vector. |
| A31 | Dimensionless | -1 | 1 | meters | The 31st axis of the embedding vector. |
| A32 | Dimensionless | -1 | 1 | meters | The 32nd axis of the embedding vector. |
| A33 | Dimensionless | -1 | 1 | meters | The 33rd axis of the embedding vector. |
| A34 | Dimensionless | -1 | 1 | meters | The 34th axis of the embedding vector. |
| A35 | Dimensionless | -1 | 1 | meters | The 35th axis of the embedding vector. |
| A36 | Dimensionless | -1 | 1 | meters | The 36th axis of the embedding vector. |
| A37 | Dimensionless | -1 | 1 | meters | The 37th axis of the embedding vector. |
| A38 | Dimensionless | -1 | 1 | meters | The 38th axis of the embedding vector. |
| A39 | Dimensionless | -1 | 1 | meters | The 39th axis of the embedding vector. |
| A40 | Dimensionless | -1 | 1 | meters | The 40th axis of the embedding vector. |
| A41 | Dimensionless | -1 | 1 | meters | The 41st axis of the embedding vector. |
| A42 | Dimensionless | -1 | 1 | meters | The 42nd axis of the embedding vector. |
| A43 | Dimensionless | -1 | 1 | meters | The 43rd axis of the embedding vector. |
| A44 | Dimensionless | -1 | 1 | meters | The 44th axis of the embedding vector. |
| A45 | Dimensionless | -1 | 1 | meters | The 45th axis of the embedding vector. |
| A46 | Dimensionless | -1 | 1 | meters | The 46th axis of the embedding vector. |
| A47 | Dimensionless | -1 | 1 | meters | The 47th axis of the embedding vector. |
| A48 | Dimensionless | -1 | 1 | meters | The 48th axis of the embedding vector. |
| A49 | Dimensionless | -1 | 1 | meters | The 49th axis of the embedding vector. |
| A50 | Dimensionless | -1 | 1 | meters | The 50th axis of the embedding vector. |
| A51 | Dimensionless | -1 | 1 | meters | The 51st axis of the embedding vector. |
| A52 | Dimensionless | -1 | 1 | meters | The 52nd axis of the embedding vector. |
| A53 | Dimensionless | -1 | 1 | meters | The 53rd axis of the embedding vector. |
| A54 | Dimensionless | -1 | 1 | meters | The 54th axis of the embedding vector. |
| A55 | Dimensionless | -1 | 1 | meters | The 55th axis of the embedding vector. |
| A56 | Dimensionless | -1 | 1 | meters | The 56th axis of the embedding vector. |
| A57 | Dimensionless | -1 | 1 | meters | The 57th axis of the embedding vector. |
| A58 | Dimensionless | -1 | 1 | meters | The 58th axis of the embedding vector. |
| A59 | Dimensionless | -1 | 1 | meters | The 59th axis of the embedding vector. |
| A60 | Dimensionless | -1 | 1 | meters | The 60th axis of the embedding vector. |
| A61 | Dimensionless | -1 | 1 | meters | The 61st axis of the embedding vector. |
| A62 | Dimensionless | -1 | 1 | meters | The 62nd axis of the embedding vector. |
| A63 | Dimensionless | -1 | 1 | meters | The 63rd axis of the embedding vector. |