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**gep***onsset*  
***Release 01-06-2019***

**KTH dESA**

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# CHAPTER 1

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## gep\_onsset

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**gep\_onsset** is a modified version of OnSSET model, openly distributed as [gep-onsset](#). It was developed to support the functionalities of the [Global electrification Platform](#). The package is available at [pypi](#) but installation is also possible through [github](#).

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**Note:** This user guide is currently under development. Fully-fledged documentation over the use of **gep\_onsset** will become available later in 2019. In the meantime feel free to take sneak peek of similar supporting material [here](#).

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## 2.1 Overview

### 2.1.1 Installation

#### Requirements

**gep\_onsset** requires Python  $\geq 3.5$  with the following packages installed:

- `et-xmlfile` $\geq 1.0$
- `jdcal` $\geq 1.4$
- `numpy` $\geq 1.16$
- `openpyxl` $\geq 2.6$
- `pandas` $\geq 0.24$
- `python-dateutil` $\geq 2.8$
- `pytz` $= 2019.1$
- `six` $\geq 1.12$
- `xlrd` $\geq 1.2$

#### Install with pip

```
` python -m pip install -i https://test.pypi.org/simple/ gep-onsset `
```

#### Install from GitHub

Download or clone the repository and install the required packages (preferably in a virtual environment):

```
` git clone https://github.com/global-electrification-platform/gep-onsset.git`
```

```
` cd gep-onsset `
```

```
` pip install -r requirements.txt `
```

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**Note:** The use of GEP generator requires also installation of

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- IPython
- jupyter
- matplotlib
- seaborn

## 2.1.2 Supporting Methods & Tools

### The Open Source Spatial Electrification Tool (OnSSET)

**gep\_onsset** code is a modified version of the OnSSET model, accustomed to serve the Global Electrification platform. The methodology behind the model is available in a [peer-reviewed academic publication](#) available online since April 2019.

### Q-GIS plug-in for developing population clusters

The identification of population settlements is the basis of the electrification analysis in many models. **gep\_onsset** requires that population settlements are represented as vector clusters. KTH dESA has developed a methodology for generating such vector clusters based on open access data. The [output dataset](#) is openly accessible. Furthermore, an open source [Q-GIS plug-in](#).

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**Note:** The above methodology requires processing in [Q-GIS](#) (an open-source GIS software).

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### Q-GIS plug-in for extracting GIS information to vector clusters

Geospatial electrification models are inextricably connected with GIS data. Extracting geospatial information to each vector cluster (see above), is therefore a necessary yet time consuming process. The extraction commands can be executed manually in [QGIS](#); however, the KTH team has developed a [Q-GIS plugin](#) in order to automate the process.

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**Note:** In order to run successfully run **gep\_onsset** the vector clusters need to be attributed using 26 GIS layers. An extensive list of those together with open access sources is available [here](#).

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## 2.1.3 Training material

Training material related to the use of **gep\_onsset** package are available on [Google's Open Online Education platform](#).

## 2.2 Contact

You can send inquiries and feedback at [seap@desa.kth.se](mailto:seap@desa.kth.se).

Review and/or add your questions on our [Forum](#).

Meet the team [here](#).

## 2.3 License

MIT License

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