SYSTEMANALYSE
FORSCHUNGSNETZWERKE
ENERGIE

emobpy: An open tool for creating battery-electric vehicle time-series from empirical data

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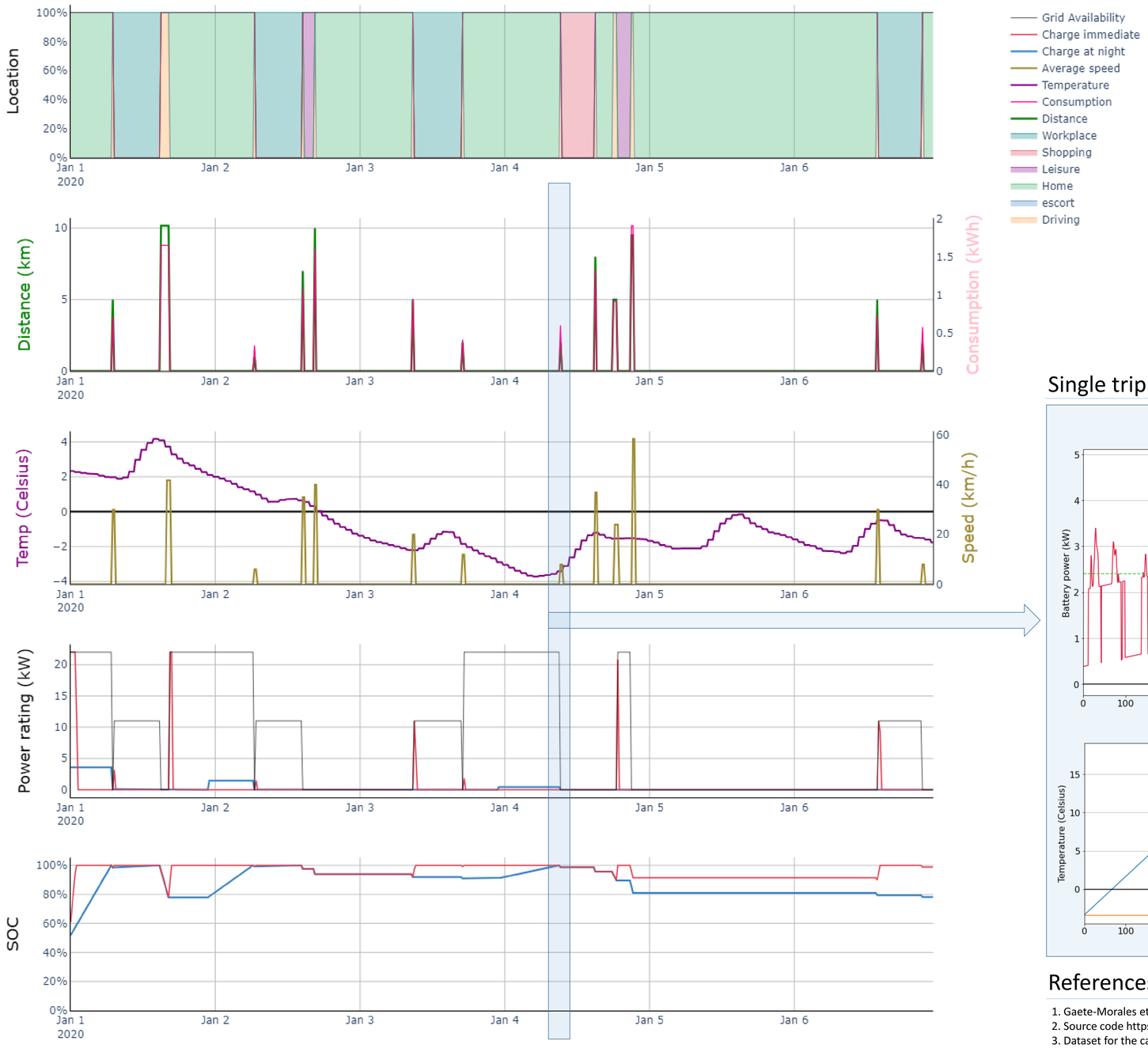
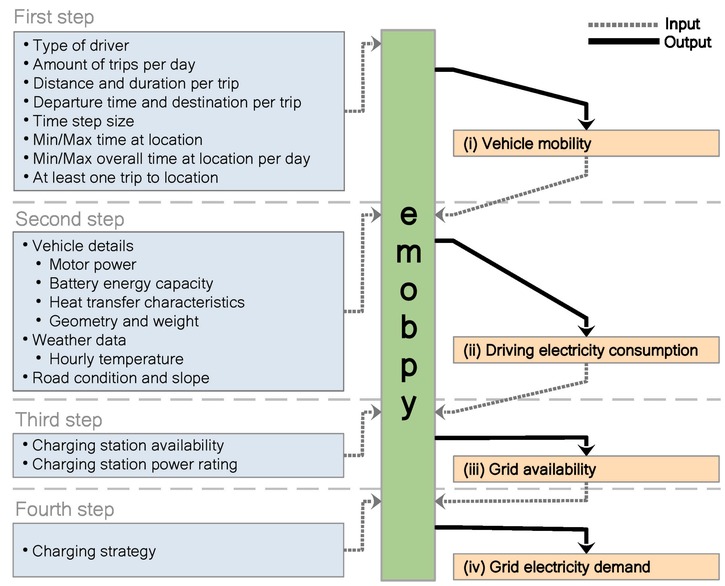
emobpy is an open-source, python-based tool that flexibly generates battery-electric vehicle profiles based on mobility statistics, physical properties of vehicles, and customizable assumptions [1]. A profile comprises four hourly time series: a vehicle's mobility, driving electricity consumption, grid availability, and, optionally, grid electricity demand. ***emobpy*** can be flexibly adjusted to accommodate different countries' data availability and researchers' assumptions on mobility behavior. Code and input data are provided open-source [2]. For an illustration, we create and characterize 200 battery-electric vehicle profiles for Germany using current BEV models. These profiles are also provided in a public repository [3].

Single battery electric vehicle time-series: Volkswagen ID.3, 45 kWh battery, 93 kW motor

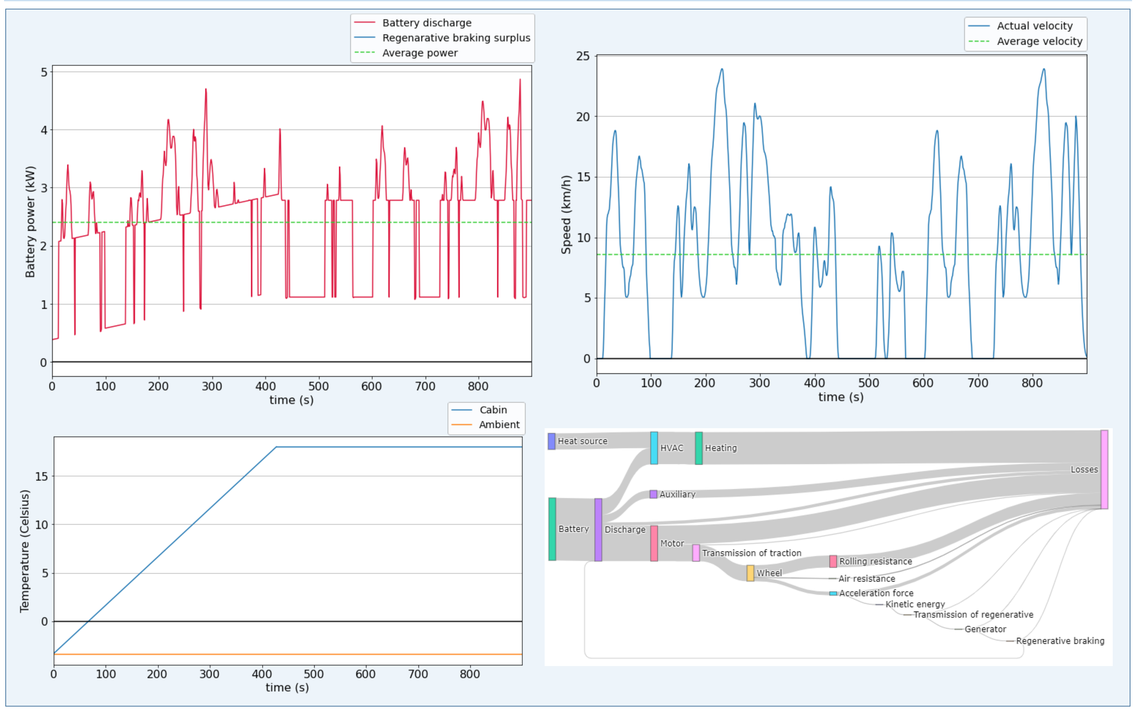


Time-series input data and creation steps



https://gitlab.com/diw-evu/emobpy/emobpy

Single trip simulations: Based on driving cycles and thermal comfort temperature



References:

1. Gaete-Morales et al. 2021. An open tool for creating battery-electric vehicle time series from empirical data – emobpy. https://arxiv.org/abs/2005.02765.
2. Source code https://doi.org/10.5281/zenodo.3675456.
3. Dataset for the case study on Germany. https://doi.org/10.5281/zenodo.3931663.