

[Help](#)[Sponsors](#)[Log in](#)[Register](#)

tbats 1.1.0

`pip install tbats`

Latest version

Released: Jul 27, 2020

BATS and TBATS for time series forecasting

Navigation

[Project description](#)[Release history](#)[Download files](#)

Project links

[Homepage](#)

Statistics

GitHub statistics:

[★ Stars:](#)[🔗 Forks:](#)[! Open issues/PRs:](#)

View statistics for this project via [Libraries.io](#) [🔗](#), or by using [our public dataset on Google BigQuery](#) [🔗](#)

Meta

License: MIT License (MIT License)

Author: [Grzegorz Skorupa](#) [\(intive\)](#) [✉](#)

Maintainers

Project description

BATS and TBATS time series forecasting

Package provides BATS and TBATS time series forecasting methods described in:

De Livera, A.M., Hyndman, R.J., & Snyder, R. D. (2011), Forecasting time series with complex seasonal patterns using exponential smoothing, Journal of the American Statistical Association, 106(496), 1513-1527.

Installation

From pypi:

```
pip install tbats
```

Import via:

```
from tbats import BATS, TBATS
```

Minimal working example:

```
from tbats import TBATS
import numpy as np

# required on windows for multi-processing,
# see https://docs.python.org/2/library/multiprocessing.html#windows
if __name__ == '__main__':
    np.random.seed(2342)
    t = np.array(range(0, 160))
    y = 5 * np.sin(t * 2 * np.pi / 7) + 2 * np.cos(t * 2 * np.pi / 30.5) + \
```



grzegorz.skorupa

Classifiers

License

- [OSI Approved :: MIT License](#)

Operating System

- [OS Independent](#)

Programming Language

- [Python :: 3](#)

```
((t / 20) ** 1.5 + np.random.normal(size=160) * t / 50) + 10

# Create estimator
estimator = TBATS(seasonal_periods=[14, 30.5])

# Fit model
fitted_model = estimator.fit(y)

# Forecast 14 steps ahead
y_forecasted = fitted_model.forecast(steps=14)

# Summarize fitted model
print(fitted_model.summary())
```

Reading model details

```
# Time series analysis
print(fitted_model.y_hat) # in sample prediction
print(fitted_model.resid) # in sample residuals
print(fitted_model.aic)

# Reading model parameters
print(fitted_model.params.alpha)
print(fitted_model.params.beta)
print(fitted_model.params.x0)
print(fitted_model.params.components.use_box_cox)
print(fitted_model.params.components.seasonal_harmonics)
```

See **examples** directory for more details.

Troubleshooting

BATS and TBATS tries multitude of models under the hood and **may appear slow when fitting** to long time series. In order to speed it up you can start with constrained model search space. It is recommended to run it without Box-Cox transformation and ARMA errors modelling that are the slowest model elements:

```
# Create estimator
estimator = TBATS(
    seasonal_periods=[14, 30.5],
    use_arma_errors=False, # shall try only models without ARMA
    use_box_cox=False # will not use Box-Cox
)
fitted_model = estimator.fit(y)
```

In some environment configurations parallel computation of models freezes. Reason for this is unclear yet. If **the process appears to be stuck** you can try running it on a single core:

```
estimator = TBATS(
    seasonal_periods=[14, 30.5],
    n_jobs=1
)
fitted_model = estimator.fit(y)
```

For Contributors

Building package:

```
pip install -e .[dev]
```

Unit and integration tests:

```
python setup.py test
```

R forecast package comparison tests. Those DO NOT RUN with default test command, you need R forecast package installed:

```
python setup.py test_r
```

Comparison to R implementation

Python implementation is meant to be as much as possible equivalent to R implementation in forecast package.

- BATS in R <https://www.rdocumentation.org/packages/forecast/versions/8.4/topics/bats>
- TBATS in R: <https://www.rdocumentation.org/packages/forecast/versions/8.4/topics/tbats>

Project details

Project links

 [Homepage](#)

Statistics

View statistics for this project via [Libraries.io](#) , or by using [our public dataset on Google BigQuery](#) 

Meta

License: MIT License (MIT License)

Author: [Grzegorz Skorupa](#) (intive) 

Maintainers



[grzegorz.skorupa](#)

Classifiers

License

- [OSI Approved :: MIT License](#)

Operating System

- [OS Independent](#)

Programming Language

- [Python :: 3](#)

Release history

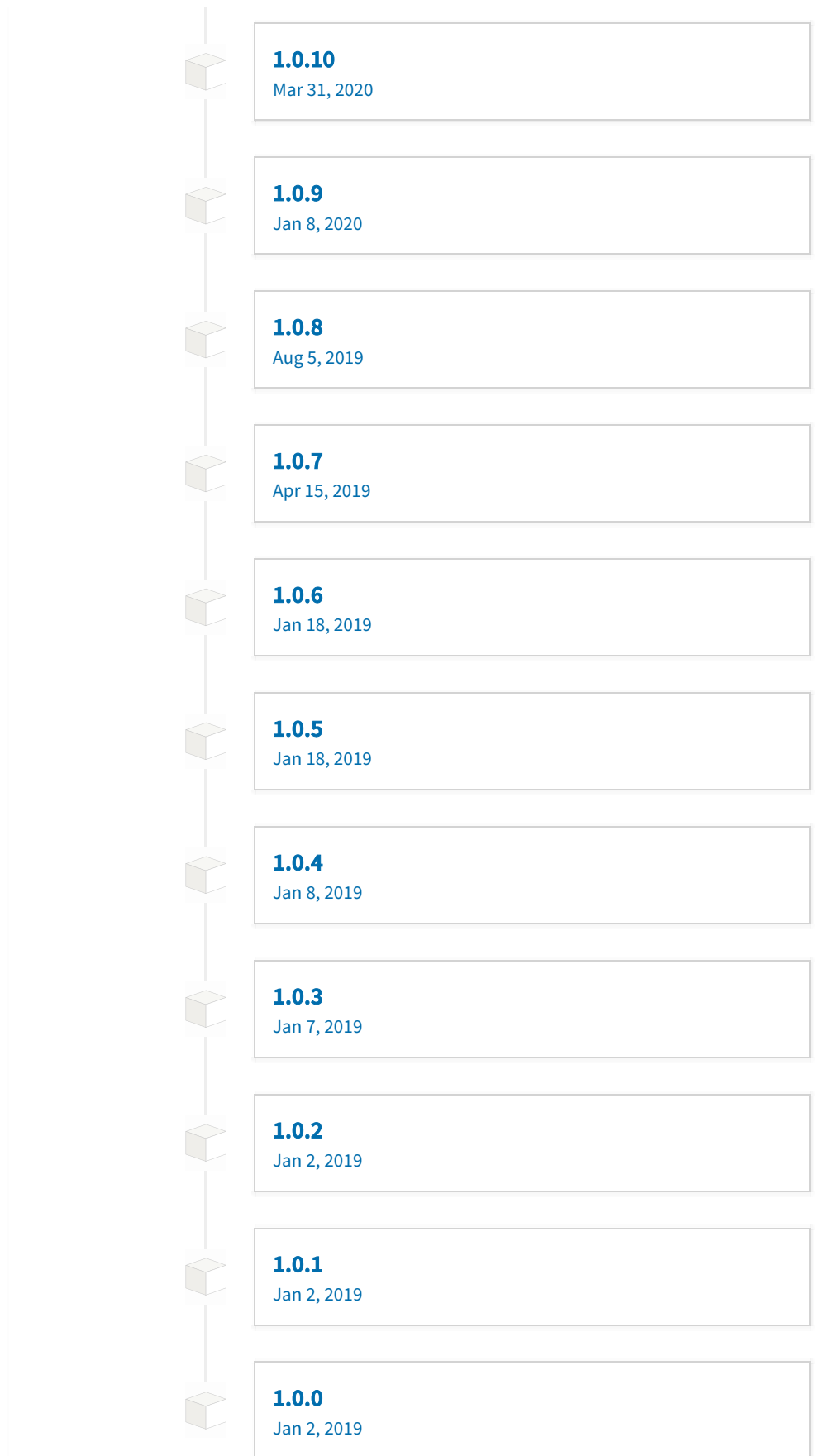
[Release notifications](#) | [RSS feed](#) 

THIS VERSION



1.1.0


Jul 27, 2020




Download files

Download the file for your platform. If you're not sure which to choose, learn more about [installing packages](#).

Source Distribution




 [tbats-1.1.0.tar.gz](#) (29.4 kB [view hashes](#))
Uploaded Jul 27, 2020 source

Built Distribution




 [tbats-1.1.0-py3-none-any.whl](#) (43.8 kB [view hashes](#))
Uploaded Jul 27, 2020 py3






Help

[Installing packages](#) 
[Uploading packages](#) 
[User guide](#) 
[FAQs](#)



About PyPI

[PyPI on Twitter](#) 
[Infrastructure dashboard](#) 
[Package index name retention](#) 
[Our sponsors](#)

Contributing to PyPI


[Bugs and feedback](#)
[Contribute on GitHub](#) 
[Translate PyPI](#) 
[Development credits](#) 

Using PyPI

[Code of conduct](#) 
[Report security issue](#)
[Privacy policy](#) 
[Terms of use](#)

Status: [All Systems Operational](#) 

Developed and maintained by the Python community, for the Python community.
[Donate today!](#)

© 2022 [Python Software Foundation](#) 
[Site map](#)

► [English](#) [español](#) [français](#) [日本語](#) [português \(Brasil\)](#) [українська](#) [Ελληνικά](#) [Deutsch](#) [中文 \(简体\)](#) [中文 \(繁體\)](#) [русский](#) [עברית](#) [esperanto](#)

