# Pytroll Memorandum of Understanding

## Introduction

The *Parties* are organisations engaged in operational services processing satellite data for meteorological or other environmental purposes. The *Parties* have entered into the Memorandum of Understanding stating the objectives for a formalised cooperation regarding the use and development of Pytroll. In order to make this cooperation possible and to fulfil its objectives, the *Parties* will accept the responsibilities regarding the activities to be performed within the cooperation.

## Pytroll

The Pytroll project started out in 2009 as a collaboration on weather satellite data processing between the Danish Meteorological Institute (DMI) and the Swedish Meteorological and Hydrological Institute (SMHI). Pytroll now has a large and growing international user base and is used operationally at several National Meteorological Services and Research Institutes around the globe. Its objective is to provide different free and open-source Python modules for the reading, interpretation, and writing of weather satellite data, among other tasks. The provided Python packages are designed to be used both in R&D environments and in 24/7 operational production.

## Objectives

Pytroll may be used by the *Parties* as part of their operational meteorological or other environmental services. These services require a high degree of availability as they are used for operational weather forecasting, for example. This requires that there has to be maintenance support in place for Pytroll. Since there is no single institute/company to provide this support, each *Party* has to self-organise this.

As there is a long-term history of fruitful cooperation between the *Parties* this Memorandum of Understanding will form the basis for agreements on the usage of Pytroll, the commitment to help each other in case of operational anomalies related to Pytroll and the encouragement to contribute to further development of Pytroll.

## Partnership

### Duration

The Memorandum of Understanding (MoU) is valid for a period of five years starting at the date this MoU is signed by at least two *Parties*. After that date the MoU enters into force for each additional *Party* at the time of its signature.

### Withdrawal

A *Party* to this Memorandum of Understanding may withdraw from this cooperation by giving at least one year notice to all the *Parties*.

### New Participants

Any new *Party* is welcome to this Memorandum of Understanding by sending a signed copy to SMHI at any given point in time.

## Contact Information

Each *Party* will assign at least one person as contact point regarding Pytroll for the *Parties* to use.

## Activities

### Information exchange

As Pytroll is all about developing and sharing open-source tools, it is paramount for its continuous successful evolution that standardised and efficient ways of exchanging information (code, bug-reports, documentation etc) is established.[1]

The Pytroll resources shall be available at any time for the *Parties* to use through making them publicly available at a common location on the web. Even though the information exchange mechanisms are not fixed, they should be capable of, but not limited to:

- Providing source code.
- Providing relevant documentation like user manuals, installation guides, design notes, testing.
- Providing contact information of (key) users at the *Parties*.
- Handling code changes (features and bug fixes) that are being provided.
- Validation of code changes before it will be incorporated in the code base, be it a person or an automated procedure.
- An issue tracking system regarding requests and bugs.

### Operational contribution

Each Party is entitled to request assistance from other *Parties* in case of an issue that affects the operational use of Pytroll at the *Parties* institutes. Each *Party* is encouraged to assist in these cases to an extent which is acceptable for the given *Party*.

### Development contribution

Each member is encouraged to participate in the development community of Pytroll.

- Development can consist of implementing features, bug fixes, providing documentation, test datasets, test cases, giving training, etc.
- Pytroll development participation requires exchanging code according to the GPL-compatible licensing.

[1] Today for example all Pytroll code is on GitHub, with documentation on ReadTheDocs, and online communication among developers is mostly carried out on Slack. Pytroll code is automatically being checked using online cloud services such as GitHub Actions, Coveralls, Codebeat, Codecov, CodeFactor, etc. This is to minimise the risk that broken code is being pushed to the central repository.

### Annual Meeting

To promote the exchange of Pytroll knowledge between *Parties* a workshop will be held at least annually. Member institutes are encouraged to host workshops. Depending on the needs of the *Parties* the workshop can focus on operational aspects, like making new satellite products, installation issues, or working on some specific Pytroll development, etc.

## Financing and Intellectual Property Rights

Each Party that participates shall carry its own costs related to the activities of this Memorandum of Understanding. All results that are provided to the Pytroll community shall become available according to the GPL-compatible license as being used by Pytroll.

## Appendix 1: Signatories to the Pytroll Memorandum of Understanding

**Signatory page**

# Pytroll Memorandum of Understanding

Swedish Meteorological and Hydrological Institute, SMHI

Name of the Party

Bodil Aarhus Andrae

Signatory's name

Director Core Services

Signatory's title

Signature

Norrköping

Place

2021-10-25

Date

Signatory page

# Pytroll Memorandum of Understanding

Finnish Meteorological Institute, FMI

Name of the Party

Prof. Jouni Pulliainen

Signatory's name

Director of Space and Earth Observation Centre

Signatory's title

Signature

Sodankylä

Place

24/11/2021

Date

## Signatory page

# Pytroll Memorandum of Understanding

Royal Netherlands Meteorological Institute, KNMI

Name of the Party

Prof. Gerard van der Steenhoven

Signatory's name

Director General KNMI

Signatory's title

Prof.Dr. Gerard van der Steenhoven

Digitally signed by Prof.Dr. Gerard van der Steenhoven
Date: 2021.10.26 08:33:45 +02'00'

Signature

De Bilt, The Netherlands

Place

Date

**Signatory page**

# Pytroll Memorandum of Understanding

DWD

Name of the Party

Prof. Sarah C. Jones

Signatory's name

Member of Executive Board, Director Research and Development

Signatory's title

Signature

Offenbach

Place

30.11.2021

Date

Signatory page

# Pytroll Memorandum of Understanding

Swiss Federal Office for Meteorology and Climatology MeteoSwiss

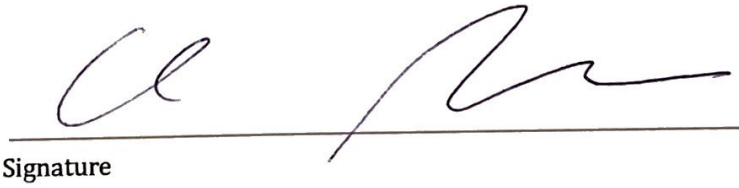
Name of the Party

Christof Appenzeller

Signatory's name

Head of the Analysis and Forecasting department

Signatory's title



Signature

Zürich

Place

2.11.2021

Date

## Signatory page

# Pytroll Memorandum of Understanding

MET Norway

Name of the Party

Cecilie Stenersen

Signatory's name

Director of Observations and Climate Service

Signatory's title

Signature

Oslo

Place

27.10.2021

Date