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D3.12 Flight Test Data Publishing
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CO	Confidential, only for members of the consortium (including the Commission Services)	

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Glossary

AGL	Above Ground Level
ATZ	Aerodrome Traffic Zone
BLDC	Brushless Direct Current
CAN	Controller Area Network
CONOPS	Concept of Operations
EDBC	Magdeburg-Cochstedt Airport
EDL	Electronic Dispatch Logging
EDMO	Airport Oberpfaffenhofen
FCC	Flight Control Computer
FTO	Flight Test Operator
GCS	Ground Control Station
GUI	Graphical User Interface
GVT	Ground Vibration Test
HIL	Hardware in the Loop
HW	Hardware
IMU	Inertial Measurement Unit
LBA	National Aviation Authority of Germany
LRZ	Leibniz-Rechenzentrum
LTE	Long Term Evolution
MCT	Mission Control Technologies
MIMO	Multi-Input Multi-Output
PCI	Peripheral Component Interconnect
PID	Proportional–Integral–Derivative
PPM	Pulse-Position Modulation
RC	Remote Controller
SIL	Software in the Loop
SISO	Single-Input Single-Output
SW	Software
TMS	Thrust Measurement Sensor
UAV	Unmanned Aerial Vehicle
VLOS	Visual Line Of Sight
VPN	Virtual Private Network
VV	Verficiation/Validation
FAIR	findable, accessible, interoperable, reusable
API	Aplication Programming Interface
DOI	Digital Object Identifier
ELKH	Eotvos Lorant Kutato Halozat

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1 Executive Summary

The current D3.12 *Flight Test Data published in Open Research Data format* document is part of the WP3 Demonstration and Testing work package. This particular deliverable collects the generated data from Task 3.6, corresponding to flight test campaigns. In the FLIPASED project TUM and SZTAKI are responsible for performing the flight tests with the demonstrator unmanned aircraft for the generation of the relevant flight test data.

To maximise the dissemination and impact of the project and to embed the results into the aviation industry the FLIPASED consortium make all flight test data available open to the research community in accordance with the H2020 initiative on Open Research Data Pilot. This is relevant because the publicly shared important and actual (flight) test data and project results facilitate the adoption of standardized methods, tools and interfaces developed in other work packages.

The project proposal sets the goal of D3.12 as *The flight test data generated within the project will be published according to the standards of the Open Research Data Pilot. The deliverable is tightly coupled with the flight test reports and feeds into the public dissemination workshop at the end of the project*. Through dissemination of validated data publicly, the deliverable provides a rare opportunity to generate great impact on the flexible aircraft research community as flight test data are very sparsely available due to confidentiality reasons. The data set generated within the project is published according to the standards of the Open Research Data Pilot, i.e. as a type of open data which is focused on publishing observations and results of scientific activities available for anyone to analyze and reuse. In the project, the various types of shared data include:

- Time series data - of flight tests in .mat files
- Flight test reports
- Flight test cards describing the goals, parameters and important events of the test

The corresponding flight control algorithms within Matlab/Simulink environment are published as well for reference. They can be found at:

Flutter control design and analysis scipts.

Note that the scripts are optimized for Matlab r2016b version, and often yield worst results with newer versions of Matlab. The scripts are using sub-modules from [6].

All data are published and uniquely identified through the CONCORDA (https://science-data.hu) scientific data repository system.

2 CONCORDA

All flight test data are published through the CONCORDA (Concentrated Cooperation on Research Data) data repository platform, which guarantees free access to its entries and renders unique identifiers to each data set. CONCORDA has been developed at SZTAKI by the Department of Distributed Systems, and its further development is carried out in the ARP project [4], which has been supported by the Eötvös Lóránd Research Network (ELKH).

The aim of the ELKH Data Repository Platform (ELKH ARP) project is to lay the foundations for a new repository infrastructure service that supports the continuous and long-term research data management of the entire ELKH research network. The development provides a solution for the secure digital storage, use and reuse of research data as a valuable data asset, as well as its further utilization by the research community [8].

The platform relies on the ELKH Cloud, a cost-effective and flexible solution due to its virtualised environment. Two institutes (SZTAKI and Wigner FK) host the hardware infrastructure of ARP, with data synchronisation between them.

Data storage redundancy is designed to be threefold at both sites, and synchronisation at the metadata level is complete and continuous between them.

The master copies are stored at SZTAKI with a planned storage area of 1365 TB, and the mirror copies interpreted for the data repository project are located at Wigner FK with a planned storage area of 512 TB.

Another key task of the project is to disseminate knowledge about the use of data repositories, to establish the necessary data management policies and regulations both at the ELKH and at the institutional level, and to introduce domestic and international data and metadata management and storage standards and recommendations, thus enabling the establishment of FAIR (findable, accessible, interoperable, reusable) data repository culture within the ELKH's institutional network [8].

CONCORDA provides data repository service for institutes and/or research groups who cannot or does not want to set up their own repository systems [4]. It is based on the Harvard Dataverse data repository software, and it supports the FAIR publication guidelines. In 2016 [9] emphasized the importance of publishing supporting data for scientific researches in order to make them reusable and reproduce-able. It set the FAIR guidelines of such data, which are as follows [5]:

- **Findable:** The data and metadata should be easy to find and should posses unique identifiers.
- **Accessible:** The user should know how the data can be accessed, possibly with authentication and authorization.

- **Interoperable:** The data need to interoperate with applications or workflows for analysis, storage, and processing.
- **Reusable:** The metadata and data should be well-described so that they can be replicated and/or combined in different settings.

The main functionalities of the datarepository system which make it a suitable choice for flight test data publication are the following [4]:

- **Creating publications:** Store important data corresponding to the publication. Furthermore during the review process access can be granted for the reviewers in order to facilitate their understanding of the developed results.
- **Unique identifiers:** A DOI is automatically requested and applied to each uploaded data set.
- **Search:** The system maintains a searchable database of all available entries.
- **Feedback:** Anyone who downloads the data has the option to provide feedback on the data set through the repository system.
- **Data upload:**
  - *API:* The user has the option to upload data to the repository by python or curl scripts through APIs.
  - *Web interface:* Once the research data is available, the user can upload it through a regular web interface, and then fill in the necessary metadata manually.
- **Data archiving:** The system provides safe, remote and easy access long term data storing options.

The Dataverse Project is an open source web application to share, preserve, cite, explore, and analyze research data. It facilitates making data available to others, and allows you to replicate others' work more easily. Researchers, journals, data authors, publishers, data distributors, and affiliated institutions all receive academic credit and web visibility.

A Dataverse repository is the software installation, which then hosts multiple virtual archives called Dataverse collections. Each Dataverse collection contains datasets, and each dataset contains descriptive metadata and data files (including documentation and code that accompany the data). As an organizing method, Dataverse collections may also contain other Dataverse collections.

The central insight behind the Dataverse Project is to automate much of the job of the professional archivist, and to provide services for and to distribute credit to the data creator. Before the Dataverse Project, researchers were forced to choose between receiving credit for their data, by controlling distribution themselves but without long term preservation guarantees, or having long term preservation guarantees, by sending it to a professional archive but without receiving much credit. The Dataverse Project breaks this bad choice: Dataverse collection is put (a virtual archive) on your website that has your website's look, feel, branding, and URL, along with an academic citation

for the data that gives full credit and web visibility to the original authors. Yet, that page of the website is served up by a Dataverse repository, with institutional backing, and long term preservation guarantees. See [7].

The Dataverse Project has grown considerably over time and is now a major international collaborative project. They encourage everyone to join.

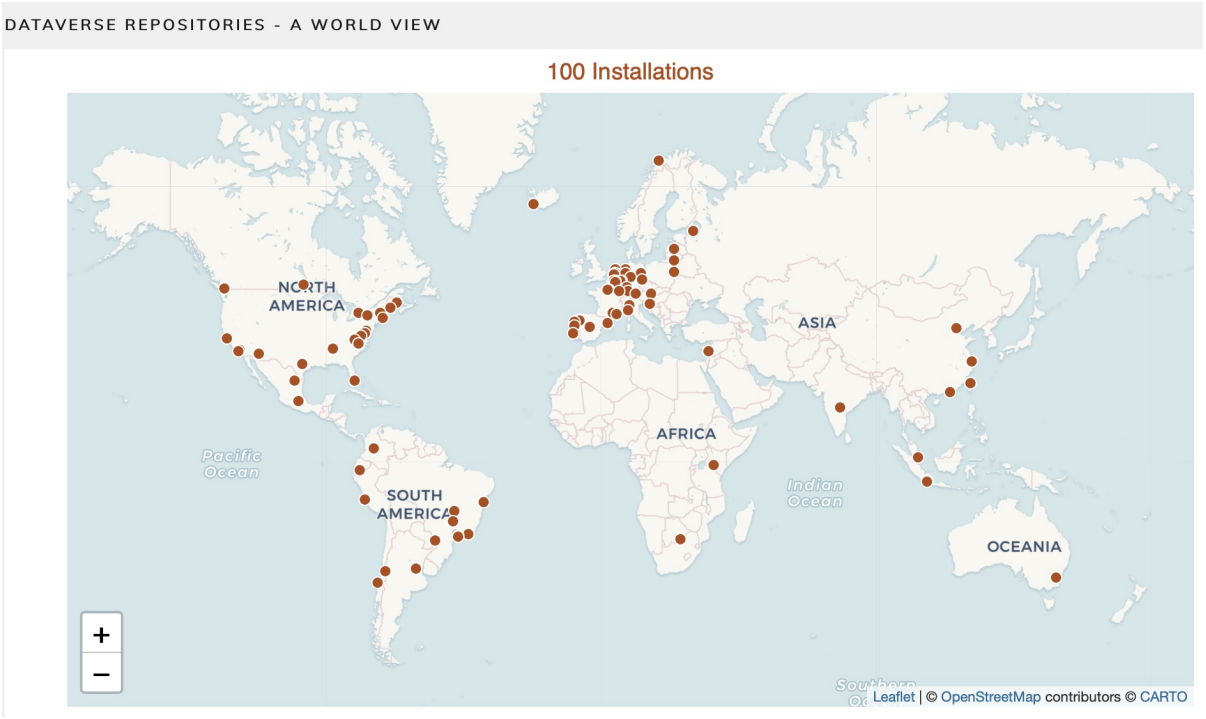

Figure 1: Worldwide adoption of Dataverse repositories

3 Flight test data structure

The data is uploaded in a single *.rar or *.zip archive file which contains:

- 01_Processed_Data
  - xy_post.mat
  - xy_TMS.mat
  - xy_jeti_log.mat
- 02_Analysis
  - xy_analysis_file.mat
  - xy_jeti_log_alligned.mat
  - FlightTestReport.docx
  - xy_flight_phases.xls
- Flight test card
- xy_extracted_maneuvers.xls

The flight test card describes the flight test sequence and the notes about the flight itself. extracted_maneuvers.xls contains the description of the different parts of the flight itseld with basic statistics and the start and end time of each test segment.

The xy_analysis_file.mat contains 247 UTC time stamped variables, including basic analysis variables about the flight itself.

The xy_post.mat file contains post-processed data about the flight itself, post processing means proper time stamping and outlier removal from the data, as well as adding calibration values to certain measurements where _raw logs are not in SI units.

There are also files named _TMS.mat related to the thrust measurement unit and _jeti_log.mat files related to the inputs and measurements received from the RC system.

For better understanding and to reduce the learning curve a sample flight test data analysis script for FT34 is also available at FT34 at CONCORDA. This includes all the lever arms and dimensions as well as the basic analysis scripts required to get familiar with the data.

4 Flight tests with T-FLEX

The FLiPASED project uses the T-FLEX demonstrator what was also used in the FLEXOP H2020 project. Due to data consistency considerations the numbering of flight tests within FLiPASED is in increasing order after the tests within FLEXOP.

An interested reader is referred to [1] for further details on flight test campaign of phase 1, and on [3] for further details on flight test campaign of phase 2.

a: available	m: missing					Add to notes at upload		
Date	02_Processed_ Data/**post.mat**	05_Analysis / **analysis_file.mat**	05_Analysis / **jeti_log_alligned.mat**	05_Analysis / **FlightTestReport**	**./Flight test card**	**Location**	**Test Objective**	**Date**
2021.04.21	a	a	a	a	a	EDMO Airport Germany.	Augmented mode and auto-throttle mode tests. Familiarization for the pilots. Trim points with different flap settings.	2021.04.21
2021.09.22	a	a	a	m	a	EDMO Airport Germany.	Throttle injection tests. Familiarization for the pilots	2021.09.22
2021.10.27								2021.10.27
2021.11.10	a	a	a	a	a	EDMO Airport Germany.	Throttle injection tests. Familiarization for the pilots	2021.11.10
2022.05.09	a	a	a	a	a	EDBC Airport Germany.	Augmented mode check, pilot training.	2022.05.09
2022.05.14								2022.05.14
2022.05.16	a	a	a	a	a	EDBC Airport Germany.	Augmented mode check, pilot training.	2022.05.16
2022.05.16	a	a	a	a	a	EDBC Airport Germany.	Autothrottle check.	2022.05.16
2022.05.17	a	a	a	a	a	EDBC Airport Germany.	Course angle and horse race pattern.	2022.05.17
2022.05.17	a	a	a	a	a	EDBC Airport Germany.	Course angle and horse race pattern.	2022.05.17
2022.05.18	a	a	m	m	a	EDBC Airport Germany.	Autothrottle envelope check.	2022.05.18
2022.05.19	a	a	a	a	a	EDBC Airport Germany.	Autothrottle envelope check.	2022.05.19
2022.05.19	a	a	a	a	a	EDBC Airport Germany.	Rigid body mode maneuvers.	2022.05.19
2022.08.23	a	a	a	a	a	EDBC Airport Germany.	Pilot Training.	2022.08.23
2022.08.23	a	a	a	a	a	EDBC Airport Germany.	Autopilot mode checks.	2022.08.23
2022.08.24	a	a	a	a	a	EDBC Airport Germany.	Pushover pullups and engine effects.	2022.08.24
2022.08.24	a	a	a	a	a	EDBC Airport Germany.	Rigid body mode maneuvers.	2022.08.24
2022.08.29	a	a	a	a	a	EDBC Airport Germany.	Rigid body mode maneuvers.	2022.08.29
2022.08.30	a	a	a	a	a	EDBC Airport Germany.	Rigid body mode maneuvers.	2022.08.30

Figure 2: Flight tests conducted within the FLiPASED project with the T-FLEX demonstrator

The next subsections brief describes each flight test, including:

- Date
- Location
- Test Objective
- Link to the uploaded data

Some flight test files are missing. These are shown by red in the table above. Unfortunatelly these files were lost due to software or data storage problems.

Date	02_Processed_Data/post.mat	05_Analysis/analysis_file.mat	05_Analysis/jeti_log_allligned.mat	05_Analysis/FlightTestReport	./Flight test card	Location	Test Objective
2023.04.04	a	a	a	a	a	EDBC Airport Germany.	First flight of the -1 wing, pilot training, autopilot checks
2023.04.05	a	a	a	a	a	EDBC Airport Germany.	Finish the autothrottle tests, the course angle hold. Then do manoeuvre injections.
2023.05.09	a	a	a	a	a	EDBC Airport Germany.	Autothrottle controller checks and the performance of it together with coordinated turn, manoeuvres from block 1.
2023.05.11	a	a	a	a	a	EDBC Airport Germany.	Check the course angle hold again. Do autothrottle check through the full envelope. Do the manoeuvres from block 1 and 2.
2023.05.11	a	a	a	a	a	EDBC Airport Germany.	Do the manoeuvres from block 1 and 2 and 3.
2023.05.12	a	a	a	a	a	EDBC Airport Germany.	Steady circles with flutter configuration. Flexible manoeuvres with flutter configuration. Flutter stopper check.
2023.05.12	a	a	a	a	a	EDBC Airport Germany.	Steady circles with flutter configuration and DLR controller on.
2023.05.24	a	a	a	a	a	EDBC Airport Germany.	Steady circles, steady circles with flutter configuration and SZTAKI controller on.
2023.05.24	a	a	a	a	a	EDBC Airport Germany.	Signal injection with flutter configuration
2023.05.25	a	a	a	a	a	EDBC Airport Germany.	Steady circles with flutter configuration DLR controller on (up to 50 m/s)
2023.05.25	a	a	a	a	a	EDBC Airport Germany.	Steady circles with flutter configuration SZTAKI 4 input and SZTAKI 6 input controllers (one of them is denoted DLR in MP).
2023.05.26	a	a	a	a	a	EDBC Airport Germany.	Steady circles with flutter configuration DLR controller on up to 59m/s.
2023.05.26	a	a	a	a	a	EDBC Airport Germany.	Steady circles with flutter configuration SZTAKI controller on up to 59m/s.
2023.05.26	a	a	a	a	a	EDBC Airport Germany.	Confirm open-loop flutter speed with increasing velocity until failure

Figure 3: Flight tests conducted within the FLiPASED project with the P-FLEX demonstrator

4.1 Flight test 7

- **Date:** 21.04.2021.
- **Location:** EDMO, Oberpfaffenhofen, Germany.
- **Test Objective:** Augmented mode and auto-throttle mode tests. Familiarization for the pilots. Test trim points with different flap settings.
- **Link:** The flight test file is available at CONCORDA through this link.

4.2 Flight test 8

- **Date:** 22.09.2021.
- **Location:** EDMO, Oberpfaffenhofen, Germany.
- **Test Objective:** Throttle injection tests. Familiarization for the pilots.
- **Link:** The flight test file is available at CONCORDA through this link.

4.3 Flight test 9

- **Date:** 10.11.2021.
- **Location:** EDMO, Oberpfaffenhofen, Germany.
- **Test Objective:** Throttle injection tests. Familiarization for the pilots.
- **Link:** The flight test file is available at CONCORDA through this link.

4.4 Flight test 10

- **Date:** 09.05.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Augmented mode check, pilot training.
- **Link:** The flight test file is available at CONCORDA through this link.

4.5 Flight test 11

- **Date:** 16.05.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Augmented mode check, pilot training.
- **Link:** The flight test file is available at CONCORDA through this link.

4.6 Flight test 12

- **Date:** 16.05.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Autothrottle check.
- **Link:** The flight test file is available at CONCORDA through this link.

4.7 Flight test 13

- **Date:** 17.05.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Course angle and horse race pattern.
- **Link:** The flight test file is available at CONCORDA through this link.

4.8 Flight test 14

- **Date:** 17.05.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Course angle and horse race pattern.
- **Link:** The flight test file is available at CONCORDA through this link.

4.9 Flight test 15

- **Date:** 18.05.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Autothrottle envelope check.
- **Link:** The flight test file is available at CONCORDA through this link.

4.10 Flight test 16

- **Date:** 19.05.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Autothrottle envelope check.
- **Link:** The flight test file is available at CONCORDA through this link.

4.11 Flight test 17

- **Date:** 19.05.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Rigid body mode maneuvers.
- **Link:** The flight test file is available at CONCORDA through this link.

4.12 Flight test 18

- **Date:** 23.08.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Pilot Training.
- **Link:** The flight test file is available at CONCORDA through this link.

4.13 Flight test 19

- **Date:** 23.08.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Autopilot mode checks.
- **Link:** The flight test file is available at CONCORDA through this link.

4.14 Flight test 20

- **Date:** 24.08.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Pushover pullups and engine effects.
- **Link:** The flight test file is available at CONCORDA through this link.

4.15 Flight test 21

- **Date:** 24.08.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Rigid body mode maneuvers.
- **Link:** The flight test file is available at CONCORDA through this link.

4.16 Flight test 22

- **Date:** 29.08.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Rigid body mode maneuvers.
- **Link:** The flight test file is available at CONCORDA through this link.

4.17 Flight test 23

- **Date:** 30.08.2022.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Rigid body mode maneuvers.
- **Link:** The flight test file is available at CONCORDA through this link.

5 Flight tests with P-FLEX

The second test campaign of 2022 has ended with the an accident. During the accident the aircraft lost connection to the pilots and therefore the parachute was released. Consequently, after landing on the ground, the engine has restarted and the aircraft burnt down.

The demonstrator was rebuilt in record time using the same design as for the previous one, but due to lessons learnt some important changes were made. These are listed below:

- The airbrakes were left out.
- Retraction mechanism of the landing gear was left out.
- Additional fuel tank volume was added in place of the retractable landing gear.
- Only -1 (flexible) wings were flown in the 2023 flight test campaigns.
- A slightly different tailwheel mechanism was used.
- The payload bay was redesigned.

When talking about flight tests in 2023 it is important to note that the aircraft was flown in two different configurations:

- Flutter-safe configuration - this configuration meant that the flutter weights were in the fore position of the flutter rods, which shifted the flutter speed of the aircraft to a calculated value of $58 - 62m/s$, which was later re-evaluated based on the findings of the flight tests and the subsequent analysis of the GVT results.
- Flutter configuration - in this configuration the flutter weights were in the aft position of the flutter rods. In this case, the preliminary flutter speed was at $49 - 51m/s$. Note that by using the flutter stopper mechanism it was possible to shift from the flutter to flutter-safe configuration in-flight.

Finally it has to be added that due to the additional fuel tanks, the centre of gravity could not be held constant anymore. An interested reader is referred to [2] for further details on flight test campaign of phase 3.

5.1 Flight test 24

- **Date:** 04.04.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** First flight of P-FLEX and the -1 wing, pilot training, autopilot checks.
- **Link:** The flight test file is available at CONCORDA through this link.

5.2 Flight test 25

- **Date:** 05.04.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Finish the autothrottle tests, the course angle hold. Then do manoeuvre injections.
- **Link:** The flight test file is available at CONCORDA through this link.

5.3 Flight test 26

- **Date:** 09.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Do further checks on the auto-throttle controller and the performance of that together with the coordinated turn. Do the manoeuvres from block 1.
- **Link:** The flight test file is available at CONCORDA through this link.

5.4 Flight test 27

- **Date:** 11.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Check the course angle hold again. Do autothrottle check through the full envelope. Do the manoeuvres from block 1 and 2.
- **Link:** The flight test file is available at CONCORDA through this link.

5.5 Flight test 28

- **Date:** 11.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Do the manoeuvres from block 1 and 2 and 3.
- **Link:** The flight test file is available at CONCORDA through this link.

5.6 Flight test 29

- **Date:** 12.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Steady circles with flutter configuration. Flexible manoeuvres with flutter configuration. Flutter stopper check. Flutter controller initial check.
- **Link:** The flight test file is available at CONCORDA through this link.

5.7 Flight test 30

- **Date:** 12.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Steady circles with flutter configuration and DLR controller on.
- **Link:** The flight test file is available at CONCORDA through this link.

5.8 Flight test 31

- **Date:** 24.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Steady circles, steady circles with flutter configuration and SZ-TAKI controller on.
- **Link:** The flight test file is available at CONCORDA through this link.

5.9 Flight test 32

- **Date:** 24.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Signal injection with flutter configuration.
- **Link:** The flight test file is available at CONCORDA through this link.

5.10 Flight test 33

- **Date:** 25.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Steady circles with flutter configuration DLR controller on (up to 50 m/s).
- **Link:** The flight test file is available at CONCORDA through this link.

5.11 Flight test 34

- **Date:** 25.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Steady circles with flutter configuration SZTAKI 4 input and SZTAKI 6 input controllers (one of them is denoted DLR in MP).
- **Link:** The flight test file is available at CONCORDA through this link.

5.12 Flight test 35

- **Date:** 26.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Steady circles with flutter configuration DLR controller on, fly beyond open-loop flutter speed up to 59m/s.
- **Link:** The flight test file is available at CONCORDA through this link.

5.13 Flight test 36

- **Date:** 26.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Steady circles with flutter configuration SZTAKI controller on, fly beyond open-loop flutter speed up to 59m/s.
- **Link:** The flight test file is available at CONCORDA through this link.

5.14 Flight test 37

- **Date:** 26.05.2023.
- **Location:** EDBC, Cochstedt, Germany.
- **Test Objective:** Confirm open-loop flutter speed with increasing velocity until failure.
- **Link:** The flight test file is available at CONCORDA through this link.

Flight test	Test Objective	Airfield	Link
FT 7	Augmented mode and auto-throttle mode tests. Familiarization for the pilots. Test trim points with different flap settings.	EDMO	link
FT 8	Throttle injection tests. Familiarization for the pilots.	EDMO	link
FT 9	Throttle injection tests. Familiarization for the pilots.	EDMO	link
FT 10	Augmented mode check, pilot training.	EDBC	link
FT 11	Augmented mode check, pilot training.	EDBC	link
FT 12	Autothrottle check.	EDBC	link
FT 13	Course angle and horse race pattern.	EDBC	link
FT 14	Course angle and horse race pattern.	EDBC	link
FT 15	Autothrottle envelope check.	EDBC	link
FT 16	Autothrottle envelope check.	EDBC	link
FT 17	Rigid body mode maneuvers.	EDBC	link
FT 18	Pilot Training	EDBC	link
FT 19	Autopilot mode checks.	EDBC	link
FT 20	Pushover pullups and engine effects.	EDBC	link
FT 21	Rigid body mode maneuvers.	EDBC	link
FT 22	Rigid body mode maneuvers.	EDBC	link
FT 23	Rigid body mode maneuvers.	EDBC	link
FT 24	First flight of P-FLEX and the -1 wing, pilot training, autopilot checks.	EDBC	link
FT 25	Autothrottle, course angle hold test, manoeuvre injections.	EDBC	link
FT 26	Further checks on auto-throttle controller and the performance of it with coordinated turn. Do the manoeuvres from block 1.	EDBC	link
FT 27	Check the course angle hold, auto-throttle check through the full envelope, manoeuvres from block 1 and 2.	EDBC	link
FT 28	Manoeuvres from block 1, 2 and 3.	EDBC	link
FT 29	Steady circles with flutter configuration. Flexible manoeuvres with flutter configuration. Flutter stopper check.	EDBC	link
FT 30	Steady circles with flutter configuration and DLR controller on.	EDBC	link
FT 31	Steady circles, steady circles with flutter configuration and SZTAKI controller on.	EDBC	link

Table 1: Flight tests 1

Flight test	Test Objective	Airfield	Link
FT 32	Signal injection with flutter configuration.	EDBC	link
FT 33	Steady circles with flutter configuration DLR controller on (up to 50 m/s).	EDBC	link
FT 34	Steady circles with flutter configuration SZTAKI 4 input and SZTAKI 6 input controllers.	EDBC	link
FT 35	Steady circles with flutter configuration DLR controller on, up to 59m/s.	EDBC	link
FT 36	Steady circles with flutter configuration SZTAKI controller on, up to 59m/s.	EDBC	link
FT 37	Confirm open-loop flutter speed with increasing velocity until failure.	EDBC	link

Table 2: Flight tests 2

6 Conclusion

The present deliverable detailes the repository and the structure of the flight test data published from the flight tests of T-FLEX and P-FLEX demonstrators.

A total of 3 flights in 2021, 14 flights in 2022, all with the T-FLEX demonstrator and 14 flights with the rebuilt demonstrator P-FLEX from 2023 are available in the repositories. The data contains several important and ground-braking results, including active flutter control tests beyond the open-loop flutter speed.

To maximise the dissemination and impact of the project and to embed the results into the aviation community the FLIPASED consortium makes all flight test data available open to the research community in accordance with the H2020 initiative on Open Research Data Pilot. In case the reader is in doubt about interpretation of the data or needs more insight she/he is encouraged to reach out to the authors for further details and clarifications. This is highly relevant since publicly shared important and actual (flight) test data and project results facilitate the adoption of standardized methods, tools and interfaces developed in the project and beyond.

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