



Data User Guide

Global Hawk Navigation EPOCH

Introduction

The Global Hawk Navigation EPOCH dataset consists of the real-time navigation and housekeeping data that was acquired by various instruments aboard the Global Hawk during the East Pacific Origins and Characteristics of Hurricanes (EPOCH) project. EPOCH was a NASA program manager training opportunity directed at training NASA young scientists in conceiving, planning, and executing a major airborne science field program. The goals of the EPOCH project were to sample tropical cyclogenesis or intensification of an Eastern Pacific hurricane and to train the next generation of NASA Airborne Science Program leadership. The data files are available from July 27, 2017 through August 31, 2017 in CSV format with associated KML browse files.

Citation

Emory, Amber. 2022. Global Hawk Navigation EPOCH [indicate subset used]. Dataset available online from the NASA Global Hydrometeorology Resource Center DAAC, Huntsville, Alabama, U.S.A. doi: <http://dx.doi.org/10.5067/EPOCH/NAV/DATA101>

Keywords:

NASA, GHRC, EPOCH, Global Hawk, navigation, Pacific Ocean, flight data logs, atmospheric pressure, ambient temperature, dew point temperature, total air temperature, wind speed, wind direction

Project

The East Pacific Origins and Characteristics of Hurricanes (EPOCH) project was a NASA program manager training opportunity directed at training NASA young scientists in conceiving, planning, and executing a major airborne science field program. Combined with this goal the EPOCH project was to sample tropical cyclogenesis or intensification of an Eastern Pacific hurricane. The EPOCH project consists of three payload instruments, ER-2

X-band Radar (EXRAD), High Altitude Monolithic Microwave Integrated Circuit Sounding Radiometer (HAMSr), and Advanced Vertical Atmospheric Profiling System (AVAPS), onboard the AV-6 Global Hawk Unmanned Aerial Vehicle research aircraft. The launch site was at the Armstrong Flight Research Center located on Edwards Air Force Base in California. The launch/flight window consisted of up to six 24-hour science flights from August 1, 2017 through August 30, 2017 over the Pacific Ocean. More information about the EPOCH project can be found at [NOAA UAS Program Participates in NASA's East Pacific Origins and Characteristics of Hurricanes \(EPOCH\) Project](#), [Emory et al., 2015](#), and [EPOCH: East Pacific Origins and Characteristics of Hurricanes | Earth](#).



Figure 1: EPOCH airborne instrument suite
(Image source: [Emory et al., 2015](#))

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Data Characteristics

The Global Hawk Navigation EPOCH dataset consists of real-time navigation and housekeeping data during the EPOCH project. These reports are stored in CSV format with associated KML browse files and are considered to be at a Level 1A processing level. More information about the NASA data processing levels are available on the [EOSDIS Data Processing Levels](#) webpage. The characteristics of this dataset are listed in Table 1 below.

Table 1: Data Characteristics

Characteristic	Description
Platform	Global Hawk UAV
Instrument	GPS, INS
Spatial Coverage	N: 37.106, S: 16.815, E: -83.844, W: -124.437 (Pacific Ocean)
Temporal Coverage	July 27, 2017 - August 31, 2017
Temporal Resolution	Daily -< Weekly
Parameter	Navigation
Version	1
Processing Level	1A

File Naming Convention

The Global Hawk Navigation EPOCH dataset files are available in CSV format with associated KML browse files and named using the following convention:

Data: GH_Nav_EPOCH_N827NA_IWG1_YYYY:MM:DD.csv

Browse: GH_Traj_EPOCH_N872NA_YYYY:MM:DD.kml

Table 2: File naming convention variables

Variable	Description
YYYY	Four-digit year
MM	Two-digit month
DD	Two-digit day
.csv	Comma-Separated Value (CSV) data format
.kml	Keyhole Markup Language (KML) data format

Data Format and Parameters

The Global Hawk Navigation EPOCH dataset consists of real-time navigation and housekeeping data in CSV format with associated KML browse files.

Software

No special software is required to read the CSV navigation files.

Known Issues or Missing Data

There are no known issues with these data or any known gaps in the dataset.

References

Amber, Emory E., M. McLinden, M. Schreier and G. A. Wick (2015). An Introduction to the Nasa East Pacific Origins and Characteristics of Hurricanes (Epoch) Field Campaign, *Tropical Cyclone Research and Review*, 4, 3-4. <https://doi.org/10.6057/2015TCRRh3.03>

NASA Earth Sciences: EPOCH: East Pacific Origins and Characteristics of Hurricanes. <https://earth.gsfc.nasa.gov/meso/campaigns/epoch>

NOAA UAS, 2017: Program Participates in NASA's East Pacific Origins and Characteristics of Hurricanes (EPOCH) Project.

<https://uxsrto.research.noaa.gov/News/Articles/ArtMID/6699/ArticleID/401/NOAA-UAS-Program-Participates-in-NASAs-East-Pacific-Origins-and-Characteristics-of-Hurricanes-EPOCH-Project>

Related Data

All data collected during the EPOCH field campaign are considered to be related. These data can be located by searching the term 'EPOCH' using the GHRC [HyDRO 2.0](#) data search tool.

Contact Information

To order these data or for further information, please contact:

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