

HIGH impact Weather LAke SYstem (HIGHWAY) Kenya Meteorological Department Lodwar High Resolution BUFR Radiosonde Data Set

1.0 Contacts:

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Original Data Source:

Kenya Meteorological Department via GTS

2.0 Dataset Overview

The Kenya Meteorological Department started transmitting the high vertical resolution BUFR format radiosonde data from the Lodwar, Kenya (Fig 1) station on the GTS (Global Telecommunications System) with the 12 UTC 17 October 2019 release. Releases continued at 00 and 12 UTC through 8 November 2019. There was then a short period of daily releases at 00 UTC until 19 November 2019. Then there was a gap until data were transmitted again starting at 12 UTC on 9 February 2020 and daily 12 UTC releases continued through the end of the HIGHWAY period on 29 February 2020. The final data set contains 108 2-second vertical soundings.



Figure 1. Location of the Lodwar, Kenya radiosonde site (red circle).

3.0 Project Overview

The HIGH impact Weather LAke SYstem (HIGHWAY) Project was a three-year project that aimed to increase the use of weather information to reduce the loss of life and damage to property in the Lake Victoria Basin region of East Africa. This project was planned to address the lack of much needed in-situ observations and data availability both for research and meteorological operational purposes. Enhanced observations were used to increase the scientific knowledge of storm initiation, evolution and development of severe weather over the lake and provide additional guidance to operational forecasters in providing regular weather forecasts and severe weather warnings for fishing boats and small transport vessels on Lake Victoria. Innovative nowcasting and forecasting products were developed, validated and implemented to improve early warnings of high impact weather in the region, with dissemination of these bulletins distributed widely through the East African region via local radio and mobile phones. This project was sponsored by the United Kingdom's Weather and Climate for Information Services (WISER) for Africa program under UK Department for International Development (DFID), providing funding to the National Meteorological and Hydrological Services (NMHSs) in the region, to the World Meteorological Organization (WMO), the UK Meteorological Office (UKMO) and to NCAR. Further information on is available at the HIGHWAY web site at NCAR/EOL: https://www.eol.ucar.edu/field_projects/highway and the HIGHWAY Field Catalog: <http://catalog.eol.ucar.edu/highway>.

4.0 BUFR Format

These data are in BUFR (Binary Universal Form for data Representation) format. BUFR is a binary data format maintained by the World Meteorological Organization (WMO). Information on BUFR is available in the WMO Manual on Codes (WMO No 306): <https://community.wmo.int/activity-areas/wmo-codes/manual-codes#Codes>. There are many resources for working with BUFR data, one example being the ECMWF ecCodes software package: <https://confluence.ecmwf.int/display/ECC>.

4.3 Data Specifics

The files contain individual soundings at two-second vertical intervals.

The file naming convention is:

HKLO_YYYYMMDDHHmm.iu?_sounding.bufr where:

YYYYMMDDHHmm is the nominal UTC data and time of the sounding.

iu? is from the GTS header and the ? can be either s or k where k means sounding up to 100 hPa and s means the entire sounding. That was not always the case in practice so both have been included here.

During the HIGHWAY period, Lodwar utilized Modem GPSonde M10 (France) radiosondes and the Eoscan 1.2.1 ground station.

Site ID	WMO ID	Site Name	Country	Latitude	Longitude	Elev (m)
HKLO	63612	Lodwar	KE	3.1187N	35.5896E	498

5.0 Data Quality Control Procedures

No data quality checks were conducted by NCAR/EOL.