



वार्षिकी Year Book 2017



एचवाईबी (आईएमओ) चुंबकीय वेधशाला **HYB (IMO) Magnetic Observatory**

एल. मंजुला, के.सी.एस. राव, एन. फणिचंद्रशेखर, कुसुमिता अरोरा
L. Manjula, K.C.S. Rao, N. Phanichandrashekhar, Kusumita Arora



प्राथमिक वैरिओमीटरभवन
Primary variometer building



गौण वैरिओमीटरभवन
Secondary variometer building



निरपेक्ष कक्ष/Absolute room -I



दिगंश स्तंभ
Azimuth pillar



निरपेक्ष कक्ष/Absolute room-II

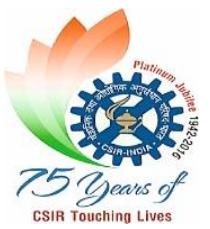
तकनीकी रिपोर्ट सं. एनजीआरआई-2018-चुंबकीय वेधशाला-904

Technical Report No. NGRI-2018-MAGOBS-904

संकलन: एल. मंजुला/ Compiled: L. Manjula
manjulalingala@gmail.com

सीएसआईआर-राष्ट्रीय भूभौतिकीय अनुसंधान संस्थान
CSIR-National Geophysical Research Institute
हैदराबाद / Hyderabad 500007, भारत / INDIA

मई / November 2018



YEAR BOOK 2017



Hyderabad Geomagnetic Observatory (HYB)

Technical Report No. NGRI-2018-MAGOBS-904

L. Manjula

K. Chandrashakar Rao

N. Phani Chandrasekhar

Kusumita Arora

CSIR-National Geophysical Research Institute
November 2018

Contents

Acknowledgements.....	04
1. Executive Summary.....	05
2. Hyderabad Magnetic observatory	08
2.1: Infrastructure.....	10
2.2: Instrumentation	11
3. Data of Hyderabad Magnetic Observatory	14
3.1: Daily mean values of H, D, Z & F.....	15
3.2: Absolute measurements.....	20
3.3: Hourly mean values of H, D & Z with IQ & ID days	25
3.4: Annual variations of H, D & Z....	31
3.5: Deviations of daily means from monthly mean.....	32
3.6: Monthly and Annual means	36
3.7: Deviation of Monthly means from Annual mean.....	36
3.8: Daily K Indices & sum.....	37
3.9: Monthly K index frequencies	40
3.10: Rapid Geomagnetic variations	41
3.11: K index frequencies yearly.....	42
4. Annual mean values	46
5. Summary of observations.....	47
6. Data requests.....	53

Acknowledgements

We thank the Director, CSIR-NGRI for the extended support for the continued work and progress of the INTERMAGNET Observatory at HYB.

We thank our colleagues of Magnetic Observatory, NGRI for wide support in the magnetic observatory to continue activities successfully.

We thank Dr. Sergey Y. Khomutov from Institute of Cosmophysical Research and Radio Wave Propagation of the Far Eastern Branch of Russian Academy of Science, for his support in the processing of data.

1. Executive Summary

Hyderabad Magnetic Observatory (HYB) is a key low latitude observatory established in 1964, at CSIR-NGRI campus in Hyderabad, equipped with 3-component analog data recording system. Generation of hourly, daily, monthly & yearly means of the H, D & Z components of the magnetic variations and analysis of K indices and Geomagnetic activities (GC, SSC, SFC, SI etc) were published in CSIR-NGRI quarterly bulletins of the Geomagnetic, Geoelectric and Seismological Observatories Bulletin from 1965 to 1970. 1970 onwards till present, the data is being published in the IIG, INDIAN MAGNETIC DATA volumes every year.

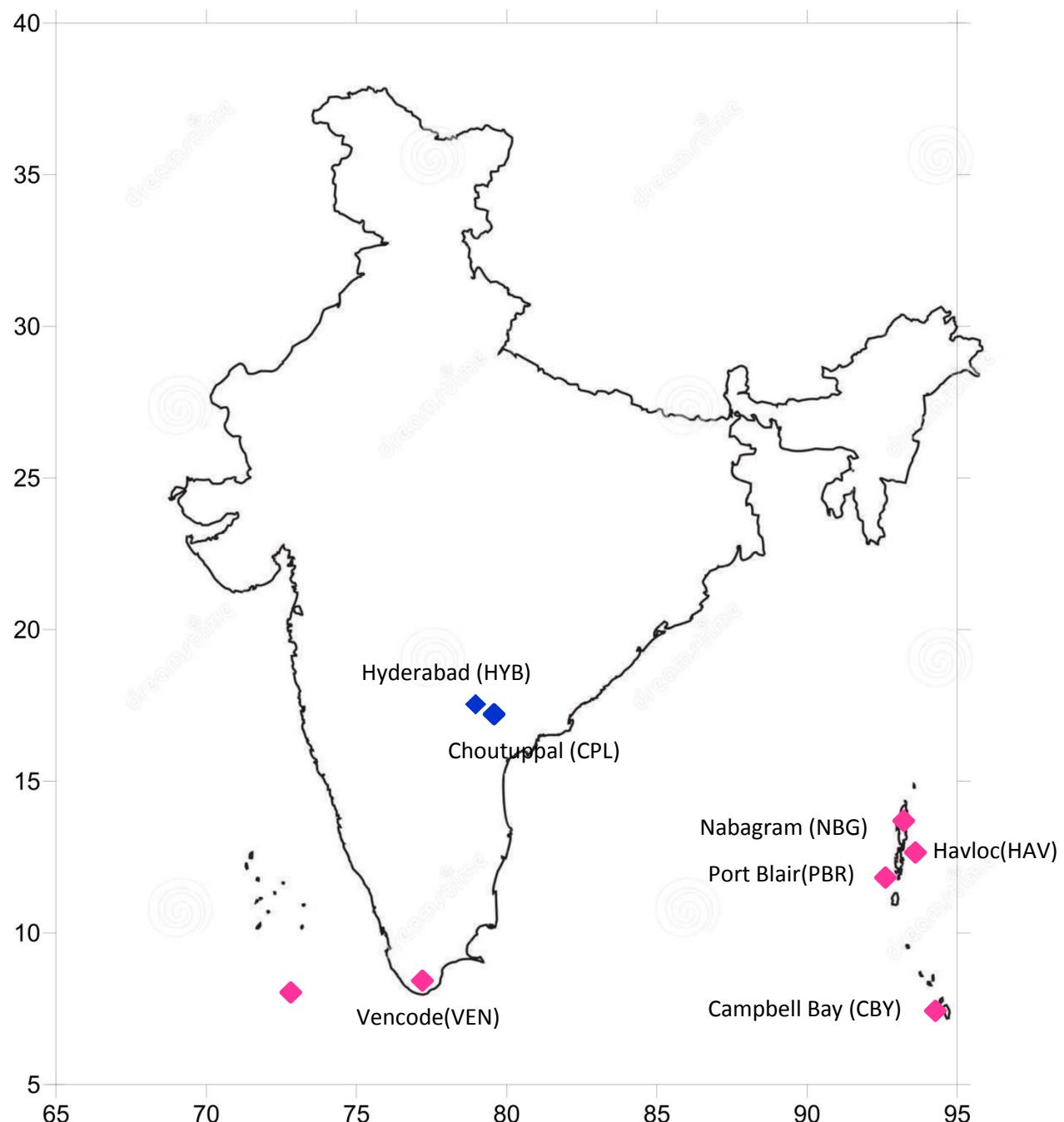
In 2007, digital triaxial fluxgate Magnetometer (DFM) was installed. The classical La cour (Analog) magnetometer and digital system were both recorded in parallel for 4 years. Then onwards DFM is considered as Primary variometer recording system and the La cour system served as secondary variometer system. Later from 2011 onwards La cour system was replaced with a second digital triaxial fluxgate magnetometer as secondary variometer system. In 2010 DMI100 absolute magnetometer and PPM absolute magnetometers were upgraded with DIM (WILD-T1+Mag-01H) and Overhauser scalar magnetometer respectively.

In 2009, HYB became an INTERMAGNET Observatory. The raw data are transmitted in real time. This is updated every half an hour directly to INTERMAGNET website (<http://www.intermagnet.org/data-donnee/dataplot-eng.php>). Quasi-definitive data is reported monthly and Definitive data is reported annually to the Edinburgh GIN as per INTERMAGNET specifications. Annual compilation of data from all observatories is completed by INTERMAGNET for use by the global community. Global data from INTERMAGNET are used in near real time to study space weather and annually to study secular variations and changes of the main field. 2010 onwards with the complete establishment of the digital regime, Quick look plots of H, D & Z components of hourly means data have been added to the data reports for IIG, INDIAN MAGNETIC DATA volumes. Monthly Rapid Magnetic Variation data (RMV) are being reported since 2015 to Ebre Observatory, Spain for ISGI publication.

This Yearbook is based on the data acquired during 2017 at HYB.

It includes:

- (i) Baseline plots with observed & adopted baseline values and table of deviation of H, D & Z, ΔF plots are included as primary QC indicators, hourly means plots with IQ & ID days, daily mean plot of H, D & Z, daily mean tables with maximum & minimum, plots of daily means deviated from monthly standard value, K-index (daily, monthly, yearly sums & daily, monthly, yearly frequencies), Rapid Magnetic variations data(RMV).
- (ii) Annual means values from 1964-2017, a plot of annual mean changes of magnetic components of H, D, Z, F & I (H-Horizontal component, Declination, Z-Vertical Component, Total magnetic field and Inclination).



- ◆ Geomagnetic Observatories (Permanent)
- ◆ Remote Geomagnetic Stations (Semi-permanent)

Figure 1.1: Map of Observatories (permanent & semi-permanent) operated by CSIR - NGRI

2. Hyderabad Magnetic Observatory (HYB)

Hyderabad Magnetic Observatory was established in December 1964 by the CSIR-National Geophysical Research Institute, Hyderabad, within its campus. It is operated and data is processed, by the CSIR-National Geophysical Research Institute. The Magnetic Observatory was equipped with La Cour variometers (analog) for H, D & Z for normal photographic record of the field variations. Vector Proton Precession Magnetometer (VPPM) served as primary absolute magnetometer from 1965-1985 by measuring the vector components (H and Z) of the magnetic field by cancelling out one of the components by means of a Helmholtz coil. From 1965 to 2002 QHM (Quartz Horizontal Magnetometer) and BMZ (Balance Magnetique Zero) served as secondary absolute instruments. Then from 1986 to 2002 VPPM and DIM100 served as Primary absolute magnetometers. From 2003 to 2010 DMI100 Declination & Inclination magnetometer (DIM) and Proton Precession Magnetometer (PPM (IIG)) were used as primary absolute magnetometers and QHM served as secondary absolute magnetometer. From 2010 onwards primary absolute magnetometers were upgraded to DIM (Mag-01H sensor + Wild-T1 theodolite) and Overhauser scalar magnetometer for better resolution and accuracy. The classical La Cour magnetometer was replaced by a Digital 3-component Fluxgate Magnetometer (DFM), of the Danish Meteorological Institute, and an Overhauser Magnetometer (GSM-90) for total field (F) variation in January 2008 apart from existing classical La Cour, under a collaborative project with the Adolf Schmidt Observatory of Geo Forschung Zentrum, Germany. The 1-second measurements are transferred by optical fibre cable to a computer. These values are averaged to obtain 1-minute data. The real-time magnetogram is displayed on a screen, refreshed every 5 minutes, at the Control Room display screen. From 2008 to 2010 August we had parallel continuous measurements of variations in the geomagnetic field using La Cour Classical magnetometer and DFM Digital magnetometer. Later La Cour was phased out and DFM system is serving as primary system and GEOMAG-02M digital 3-component Fluxgate Variometer serving as a secondary system. The observatory has served as an international Key Observatory for IAGA since 1978. In September 2009, HYB achieved INTERMAGNET status.

Table2.1: Details of Latitude and longitudes from 2015 to 2017

HYB		Latitude	Longitude
	Geographic	17° 25' N	78° 33' E
2015	Dipole	8.77° N	152.24° E
2015	Dip	07.29° N	78.55° E
2016	Dipole	8.81° N	152.34° E
2016	Dip	07.304° N	78.55° E
2017	Dipole	8.77° N	152.44° E
2017	Dip	07.267° N	78.55° E

2.1 Infrastructure:

Layout of HYB Magnetic Observatory



Figure 2.1a: Layout of the Magnetic Observatory complex in CSIR- NGRI; 1cm is approximately 20 m



Fig. 2.1b: Primary variometer building



Fig. 2.1c: Secondary variometer building



Fig. 2.1d: Absolute room I



Fig. 2.1e: Azimuth pillar



Fig. 2.1f: Absolute room II

2.2. Instrumentation

Variation measurements:

In 2017 the following recording units were operated and the technical details are listed in Table 2.2.1

- 2 three component flux-gate variometers with digital recording (DFM, GEOMAG)
- 2 scalar Overhauser effect proton magnetometer with digital recording (GSM)

Table 2.2.1: Parameters of the variometer systems and scalar Magnetometers:

3-component variometer:	DMI FGE (Primary)	GEOMAG - 02M
Serial number:	S0314	MS-28/2012
Type:	suspended; linear-core Tri axial fluxgate	suspended, linear core Tri axial fluxgate
Data logger:	Magdalog	GEOMAG-Console
Serial number:	E0377	MS-28/2012
Orientation:	H, D , Z	H, D , Z
Acquisition interval:	1 s	1 s
A/D converter:	ADAM	console
Resolution:	0.1 nT	0.01 nT
Sampling rate:	2 Hz	1 Hz
Sensitivity :	D=27.14min/V H=313.7nT/V Z=311.8nT/V	
Total-field Magnetometer:	GSM-90	GSM-19
Sensor Serial number:	62716	24577
Logger Serial number:	6092105	2075386
Type:	Overhauser	Overhauser
Acquisition interval:	5 s	1 s
Resolution:	0.01 nT	0.01 nT
Data acquisition system:	Electronics	Its Console
Timing:	GPS	GPS

Three component flux-gate variometer FGE

The FGE variometer is the main vector magnetometer. It is a three component linear core tri-axial flux-gate magnetometer with Cardan's suspension, manufactured by the Danish Meteorological Institute at Copenhagen. The three magnetic elements H, D and Z and the room temperature are recorded.

Overhauser Proton Magnetometer GSM

The geomagnetic total intensity (F) is recorded using the GSM Overhauser proton magnetometer manufactured by GEM Systems, Canada. For every 5 seconds, a measurement value of resolution 0.01 nT is generated and transmitted connection cables. From logger the data is further transmitted to the PC by optical cable via OFC.

GEOMAG-02M(MS-28)

The FGE variometer is the main vector magnetometer. It is a three component linear core tri-axial flux-gate suspended magnetometer, manufactured by RESEARCH CENTRE GEOMAGNET" Lviv, Ukraine.

Absolute Measurements

Throughout the year, the absolute measurements were carried out as follows:

Two absolute measurements are taken using the Mag-01 DI-flux magnetometer on pillar No.1 (Absolute room-I) twice a week. The corresponding total field measurement is taken from GSM Overhauser magnetometer located in DFM sensor room. Therefore, the F measurement values, obtained are corrected by means of the corresponding offset to the pillar No.1 (Absolute room-I).

Table 2.2.2: Details of absolute magnetometer

DI fluxgate:	Mag-01H
Serial number:	545
Theodolite:	WildT1
Serial number:	235823
Resolution:	3'
D accuracy:	6'
I accuracy:	6'

3. Data of Hyderabad Magnetic Observatory (HYB)

During 2017 the recordings and measurements at the NGRI observatory have been continued without interruption. Absolute measurements were taken at least twice per week using the DI-flux theodolite and an Overhauser effect proton magnetometer. The three component fluxgate variometers FGE and GEOMAG. The NGRI Observatory has continued to participate in the INTERMAGNET project.

Table 3.1: Key Observatory information:

IAGA code	HYB
Commenced operation	1964
Geographic latitude	17° 25' N
Geographic longitude	78° 33' E
Geomagnetic latitude	7.6° N
Geomagnetic longitude	148.9° E
K 9 index lower limit	300nT
Principal pillar	Pillar1, Absolute room 1
Reference mark azimuth	175° 26' 8"
Distance	144 m
Observer	L. Manjula

Table 3.2: Azimuth corrections for the Absolute pillars:

S.No.	Pillar	Azimuth Correction
1.	Pillar1, Absolute Room 1	175° 26' 08"
2.	Pillar 2, Absolute Room 2	0° 03' 30"
3.	Pillar 3, Secondary variometer room	-0° 35' 00"

3.1. Daily Means of H, D, Z & F

These daily mean values are calculated from absolute minute mean H, D & Z diurnal data. In this daily mean tables, also marked maximum & minimum variations of every month. In this region (Low latitude) the maximum magnetic field is reflected in the H component.

Tables 3.1.1 to3.1.4: These are the daily means of H, D, Z & F components monthly wise with maximum and minimum values.

Hyderabad

Daily Mean Values of the Horizontal Intensity
 Daily Intervals Calculated in Terms of UTC, H= 39000 + Tabulated Value

2017

D	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	468.3	461.7min	460.5	460.0	489.4	492.4	496.0	504.1	472.2	475.6	515.2	506.2
2	466.9	467.9	451.1	470.2	492.5	483.0	487.2	501.6	473.5	481.6	508.2	512.8
3	475.0	463.8	450.8	477.5	487.6	481.3	492.5	501.9	483.1	487.3	491.8	506.3
4	478.2	472.1	461.2	458.4	490.1	483.6	496.1	489.6	484.1	493.5	501.6	499.0
5	473.2	465.7	467.6	485.2	492.0	491.2	499.2	482.8	483.5	500.3	504.8	495.1
6	467.2	474.6	462.4	470.8	498.5	491.5	507.6	488.6	493.5	493.5	511.2	489.3min
7	468.0	469.5	461.8	479.1	480.3	496.8	499.0	487.2	490.0	496.2	491.4	497.0
8	468.5	483.8	470.1	473.6	485.8	493.3	509.4	497.8	386.2min	500.9	441.8min	501.5
9	466.4min	480.3	458.1	464.3	492.0	491.3	498.0	495.3	436.2	505.9	464.2	507.7
10	471.0	475.9	470.0	488.5	492.3	498.5	487.7	503.2	453.7	511.7max	476.4	510.3
11	475.3	477.9	478.2	481.4	501.2	490.1	496.4	502.9	470.0	492.1	484.2	508.3
12	481.1	492.0	471.9	474.4	495.1	487.0	498.7	499.2	479.5	467.5	492.8	499.0
13	484.1	486.7	486.9	483.7	494.4	485.5	503.6	496.0	469.0	461.5	496.8	501.5
14	488.2	491.1max	481.5	466.7	506.0max	488.7	508.4max	496.1	466.1	465.3	486.0	509.6
15	491.6	488.6	487.2	479.0	501.1	500.5	508.5	503.7	459.3	459.8min	488.4	514.5
16	490.8	483.4	482.5	481.7	488.5	485.7	468.6	504.5max	455.6	484.1	494.5	517.4max
17	492.5max	468.8	490.1	484.6	483.4	475.9min	455.1min	477.3	465.3	488.3	497.9	500.9
18	479.1	478.4	492.5	495.4max	482.7	481.7	466.8	481.0	468.1	494.8	497.0	496.5
19	470.3	476.9	490.3	474.5	485.3	476.1	489.2	479.8	481.3	490.3	509.1	503.3
20	473.3	475.6	491.7	452.9	455.0	484.0	503.0	478.1	480.6	492.8	516.1	506.6
21	476.8	488.3	485.7	466.7	467.2	483.2	481.5	488.0	485.0	502.7	483.7	506.3
22	474.4	478.1	469.0	434.2min	466.7	486.3	482.8	486.6	487.0	498.6	482.9	515.6
23	480.8	487.6	475.4	441.2	468.4	504.6max	479.5	454.9min	493.6	502.3	488.3	516.4
24	477.8	474.8	483.1	444.3	475.0	491.1	495.6	470.9	496.3	497.9	495.3	511.6
25	484.6	478.4	482.0	451.5	476.9	486.7	491.2	490.7	494.5	490.0	494.1	498.7
26	483.8	484.7	492.8max	454.7	485.4	490.7	490.2	494.5	505.6max	471.3	506.7	499.7
27	468.5	484.0	446.7min	458.8	493.8	491.6	490.6	488.1	480.7	489.6	516.7max	506.7
28	479.6	478.3	448.1	463.6	403.7min	496.7	498.4	485.2	447.6	494.7	500.5	506.7
29	478.9		457.6	473.7	459.2	491.4	497.8	499.5	460.3	497.7	509.5	511.2
30	487.0		463.4	478.7	460.6	501.1	497.2	499.8	469.9	501.6	504.8	512.3
31	474.7		453.2		475.0		503.8	483.2		505.6		515.6
Mean	477.3	478.2	471.7	469.0	481.5	489.4	492.9	490.7	472.4	490.2	495.1	505.9

Table 3.1.1: Daily Mean Values of the Horizontal Intensity

Hyderabad

Daily Mean Values of the Declination (Westerly)

Daily Intervals Calculated in Terms of UTC, D= 0° + ' Tabulated Value

2017

D	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	39.21	38.60	38.60	38.29	38.64	38.68	38.19	38.23	37.95	37.97	38.15	37.71
2	39.16	38.76	38.52	38.11	38.68	38.22	37.98	38.32	38.11	37.82	37.95	38.00
3	39.03	38.97	38.19min	38.31	38.43	38.26	38.05	38.40	37.96	37.85	37.91	37.84
4	39.27max	38.72	38.31	38.11	38.41	38.29	38.12	38.24	38.14	37.69	37.83	37.91
5	39.04	38.70	38.68	38.40	38.32	38.46	38.21	37.99	38.00	37.85	38.21max	37.83
6	38.94	38.73	38.37	38.46	38.34	38.56	38.17	38.02	38.11	37.68	38.04	37.66
7	39.01	38.73	38.44	38.18	38.34	38.38	38.19	38.17	38.31	38.10	37.88	37.65
8	39.03	38.68	38.32	38.63	38.39	38.46	38.01	38.17	37.24min	38.00	37.37	37.91
9	39.17	38.72	38.37	38.44	38.49	38.33	37.90	37.95	38.13	38.11	37.70min	37.74
10	39.05	38.68	38.44	38.61	38.46	38.32	38.25	38.05	38.02	38.22max	37.56	37.93
11	39.11	38.61	38.71max	38.70	38.36	38.09	38.08	38.45	38.03	38.10	37.94	37.73
12	39.12	38.85	38.51	38.31	38.68	38.39	38.30	38.41	38.31	37.88	37.91	37.83
13	38.98	38.86	38.64	38.57	38.56	38.59	37.86min	38.38	37.92	37.72	37.65	37.80
14	39.10	38.75	38.43	38.27	38.57	38.23	38.45max	37.94	37.95	37.54min	37.61	38.02
15	39.13	38.78	38.56	38.66	38.43	38.27	38.11	38.22	38.01	37.70	37.71	38.06max
16	39.14	38.58	38.69	38.32	38.75max	38.47	38.03	38.10	37.95	37.73	37.98	37.75
17	39.10	38.73	38.60	38.66	38.51	38.27	37.74	37.93	37.82	37.70	37.54	37.98
18	38.92	39.00max	38.62	38.72max	38.35	38.29	37.89	38.17	38.05	37.86	37.99	37.66
19	38.63	38.61	38.65	38.24	38.40	38.20	37.89	38.01	38.03	37.71	37.94	37.93
20	38.90	38.91	38.63	38.14	38.28	38.34	38.24	37.92	37.93	37.99	38.21	37.73
21	38.73	38.61	38.64	38.35	38.20	38.38	38.09	37.96	38.20	37.95	37.63	38.01
22	38.81	38.38	38.52	37.80min	37.96	37.92min	37.93	37.94	38.00	38.10	37.86	37.77
23	38.64	38.78	38.68	38.05	37.93min	38.69max	37.91	37.83min	38.25	38.09	37.96	38.04
24	39.16	38.56	38.71max	38.08	38.08	37.98	38.08	38.23	38.35max	38.07	37.75	37.79
25	39.01	38.53min	38.51	38.31	38.10	38.15	38.07	38.15	37.90	38.03	37.56	37.58min
26	38.74	38.54	38.46	38.05	38.30	38.32	37.99	38.42	38.21	37.61	37.86	37.61
27	38.77	38.63	38.33	38.20	38.46	38.15	38.06	38.12	37.75	37.93	37.91	37.75
28	39.03	38.70	38.20	37.97	38.46	38.25	38.29	38.06	37.79	37.95	38.03	37.86
29	38.59		38.20	38.46	38.32	38.28	37.91	38.50max	37.76	38.20	37.83	37.76
30	38.57min		38.30	38.52	38.25	38.33	38.29	38.29	37.71	38.21	37.74	37.88
31	38.75		38.19min		38.35		37.99	38.12		37.95		37.91
Mean	38.96	38.70	38.48	38.33	38.38	38.32	38.07	38.15	38.00	37.91	37.84	37.83

Table 3.1.2: Daily Mean Values of the Declination (Westerly)

Hyderabad

Daily Mean Values of the Vertical Intensity
 Daily Intervals Calculated in Terms of UTC, Z= 17500 + Tabulated Value

2017

D	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	362.8	371.5min	378.3	386.2min	396.3min	410.0	416.6	427.5	441.7	448.6min	461.8	473.5min
2	363.7	372.2	379.6	388.5	396.1	408.4	416.9	425.7min	438.6	450.9	461.5min	476.3
3	362.0	374.4	378.3	389.5	401.0	407.7min	416.3	426.4	438.9	447.9	463.6	475.5
4	363.4	373.2	377.5	389.1	396.9	409.7	415.8	426.6	439.8	451.8	463.8	474.8
5	363.1	372.1	379.0min	388.3	398.3	408.9	415.8min	431.3	437.1min	451.3	461.7	476.1
6	363.8	376.5	380.2	386.9	396.3	411.3	419.2	427.7	437.8	449.3	462.4	477.7
7	362.5	371.8	379.6	388.5	398.1	410.0	418.4	430.6	438.3	452.4	463.9	476.8
8	365.1	371.9	380.7	389.5	399.4	408.4	419.7	430.3	445.5	450.4	465.1	477.2
9	361.0min	372.7	379.7	388.1	402.9	412.5	423.3	433.4	444.5	451.2	466.4	476.3
10	364.1	373.6	380.0	388.9	397.6	410.9	422.7	431.7	442.4	452.0	467.6	477.9
11	363.5	373.1	381.6	384.1	399.9	410.5	420.7	431.1	439.3	453.5	468.5	479.7
12	363.5	372.9	382.1	390.9	399.3	414.1	425.6	432.1	443.9	455.9	468.7	478.8
13	363.4	372.5	382.4	389.7	400.8	412.1	421.7	432.4	442.6max	457.5	468.4	480.0
14	361.3	373.4	380.5	388.4	400.0	412.7	416.7	431.1	443.6	456.0	468.6	478.5
15	361.7	372.2	382.0	390.9	399.5	409.9	422.8	431.8	444.2	454.5	469.1	477.9
16	361.4	373.2	381.4	388.0	400.7	415.1	426.2	432.6	445.9	457.7	469.3	480.2
17	364.7	376.5	383.8	388.8	401.5	415.0	426.5	433.3	445.8	457.2	468.5	479.1
18	362.5	374.3	381.4	392.5	404.0	412.2	426.1	433.4	448.5	458.2	467.0	479.0
19	364.1	373.1	383.2	391.6	399.2	414.5	423.3	432.8	445.1	459.2	465.3	481.4
20	364.3	376.7	382.4	393.4	401.7	411.8	425.7	437.0	445.1	459.5	468.0	480.9
21	361.3	377.9	383.0	391.0	403.0	416.3	427.2	433.1	446.8	458.0	469.3	480.1
22	363.9	375.5	384.3	395.3	402.5	417.5	424.7	437.3	446.8	457.8	470.5	484.5
23	368.1	375.3	387.3	394.1	405.0	412.1	425.2	436.7	447.8	456.9	467.4	481.9
24	365.2	378.9max	385.6	394.9	404.3	417.0	423.7	438.7	446.1	459.7	470.1	481.4
25	369.3	375.1	384.1	395.1	409.2	415.0	427.4	434.0	446.2	462.8	472.7	482.8
26	366.6	374.0	385.9	394.6	408.1	415.8	430.5max	434.1	447.7	460.7	471.7	482.7
27	371.7max	376.3	382.9	396.3	407.0	416.9	424.8	435.0	447.2	460.3	471.4	482.3
28	369.4	377.3	389.3max	396.9	409.6	416.1	428.2	434.7	450.2	460.4	474.9max	484.5max
29	367.0		387.8	394.4	405.8	416.5	428.0	439.1max	451.4	461.7	474.9max	482.6
30	370.1		384.4	399.5max	413.5max	419.5max	425.7	436.6	452.1	462.4max	474.3	484.4
31	369.5		386.2		407.5		426.4	438.5		460.1		481.6
Mean	364.6	374.2	382.4	391.1	402.1	412.9	423.0	432.8	444.4	456.0	467.9	479.6

Table 3.1.3: Daily Mean Values of the Vertical Intensity

Hyderabad

Daily Mean Values of Total field
 Daily Intervals Calculated in Terms of UTC, F= 43000 + Tabulated Value

2017

D	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	322.3	319.9min	325.5	324.5	355.4	363.8	369.8	381.7	358.5	364.5	406.0	402.6
2	321.4	325.9	313.6	334.7	358.1	354.6	361.9	378.6	358.4	370.9	399.5	409.8
3	328.2	323.1	312.8	341.7	355.7	352.8	365.7	379.2	367.3	374.8	385.4	403.5
4	331.6	330.1	322.0	324.2	356.2	355.7	369.6	368.1	368.6	382.0	394.4	396.6
5	327.0	323.8	328.4	348.2max	358.5	362.2	372.4	363.9	366.9	388.0	396.5	391.3
6	321.8	333.7	324.1	334.5	363.6	363.5	381.5	367.7	376.3	381.0	402.6	388.9min
7	322.0	327.2	323.3	342.8	347.8	367.8	373.3	367.6	373.3	384.8	381.5	395.6
8	323.5	340.2	331.3	338.2	353.4	363.9	383.3	377.1	281.8min	388.2	340.5	399.9
9	319.8min	337.4	320.0	329.1	360.5	363.8	374.4	376.1	326.9	391.3	361.4	405.1
10	325.4	333.7	331.0	351.5	358.5	369.7	364.8	382.6	342.0	398.8max	373.0	408.2
11	329.0	335.3	339.1	343.1	367.6	361.9	371.9	382.0	355.5	381.6	380.5	407.1
12	334.3	348.1max	333.6	339.5	361.8	360.5	375.9	378.2	366.0	360.1	388.4	398.2
13	337.0	343.1	347.4	347.5	361.8	358.4	378.8	376.3	356.0	355.3	391.9	401.0
14	339.8	347.5	341.6	331.5	372.0max	361.6	381.1	375.9	352.9	358.1	382.2	407.8
15	343.1	344.7	347.5	343.7	367.3	371.2	383.8max	383.1	347.8	352.5min	384.6	412.0
16	342.2	340.4	343.0	344.9	356.4	359.8	348.8	384.2max	345.1	375.9	390.2	415.6
17	345.1max	328.5	350.9	347.9	352.1	350.9	336.6min	359.7	353.9	379.5	392.9	400.1
18	332.1	336.3	352.1max	359.3	352.4	355.0	347.1	363.1	357.6	385.9	391.6	396.0
19	324.7	334.4	350.8	339.9	352.8	350.8min	366.4	361.7	368.2	382.2	401.9	403.2
20	327.6	334.8	351.7	321.0	326.3	356.8	380.0	361.9	367.6	384.6	409.4	406.0
21	329.5	346.8	346.5	332.5	338.0	358.0	361.0	369.3	372.3	393.0	380.4	405.4
22	328.4	336.5	331.8	304.7	337.3	361.3	361.1	369.8	374.1	389.2	380.2min	415.7max
23	335.9	345.1	338.9	310.6min	339.9	375.8max	358.3	340.7min	380.5	392.2	383.8	415.4
24	332.0	334.9	345.2	313.8	345.6	365.5	372.4	356.1	382.2	389.4	391.3	410.8
25	339.9	336.6	343.6	320.4	349.4	360.7	369.9	372.2	380.7	383.4	391.2	399.6
26	338.0	341.9	354.2	323.1	356.9	364.6	370.3	375.6	391.4max	365.5	402.3	400.5
27	326.2	342.2	310.9min	327.6	363.8	365.9	368.3	370.2	368.5	382.0	411.3max	406.7
28	335.4	337.4	314.9	332.2	282.8min	370.3	376.8	367.5	339.6	386.7	398.0	407.6
29	333.7		323.0	340.3	331.8	365.6	376.1	382.3	349.7	390.0	406.2	410.9
30	342.4		326.8	347.0	336.3	375.6	374.7	381.6	360.7	393.9	401.6	412.7
31	331.0		318.3		346.9		381.0	376.1		396.5		414.5
Mean	331.3	336.1	333.7	334.7	350.5	362.3	369.6	371.9	359.7	380.7	390.0	404.8

Table 3.1.4: Daily Mean Values of the Total Field

3.2. Absolute Measurements

Throughout the year, the absolute measurements were carried out as follows:

Two absolute measurements are taken using the Wild DI-flux theodolite on Pillar-1 (Absolute room-I) twice per week, if required thrice in a week.

During absolute observations we do record F(scalar) data on the Pillar-2 and immediately after the observations take F data at the Pillar-1. So, on the days of absolute observations we have F(scalar) for around an hour.

From 18.04.2017 to 09.05.2017 the scalar magnetometer is recorded at the Secondary Variometer building during absolute observations.

During 2017, 155 absolute observations carried out. Out of that 55 observations are considered for the baseline construction for 2017. H baseline changed about 3.5nT, D baseline changed 0.2min and Z baseline changed 0.5 nT over the year.

The following tables contains the baseline values of selected 55 observations.

Table 3.2.1: Offset values in nT for the year 2017 (F value difference Pillar-1 and Pillar-2 at absolute room-1):

Month	dF= F(P-1)-F(P-2)	dF(current)-dF(Previous)	Month	dF= F(P-1)-F(P-2)	dF(current)-dF (Previous)
01.01.2017	20.62	0.41	18.07.2017	19.77	0.32
06.01.2017	19.77	-0.85	27.07.2017	19.8	0.03
10.01.2017	19.63	-0.14	01.08.2017	19.22	-0.58
13.01.2017	20.34	0.71	08.08.2017	19.41	0.19
17.01.2017	20.23	-0.11	17.08.2017	19.7	0.29
20.01.2017	19.73	-0.5	22.08.2017	19.2	-0.5
03.02.2017	20.05	0.32	29.08.2017	19.67	0.47
13.02.2017	20.06	0.01	05.09.2017	19.1	-0.57
27.02.2017	19.93	-0.13	12.09.2017	19.2	0.1
07.03.2017	19.75	-0.18	19.09.2017	19.3	0.1
15.03.2017	19.7	-0.05	26.09.2017	19.87	0.57
21.03.2017	19.66	-0.04	10.10.2017	19.89	0.02
28.03.2017	19.46	-0.2	14.10.2017	19.56	-0.33
04.04.2017	19.7	0.24	20.10.2017	20.05	0.49
12.04.2017	19.55	-0.15	26.10.2017	19	-1.05
18.04.2017	-35.65	-55.2	01.11.2017	20.12	1.12
26.04.2017	-35.84	-0.19	09.11.2017	20.21	0.09
02.05.2017	-36.08	-0.24	15.11.2017	19.1	-1.11
09.05.2017	-35.72	0.36	17.11.2017	20.31	1.21
16.05.2017	19.42	55.14	23.11.2017	19.05	-1.26
23.05.2017	19.42	0	01.12.2017	19.98	0.93
30.05.2017	19.45	0.03	05.12.2017	20.02	0.04
13.06.2017	19.38	-0.07	11.12.2017	20.05	0.03
20.06.2017	19.4	0.02	15.12.2017	19.97	-0.08
28.06.2017	19.15	-0.25	20.12.2017	20.09	0.12
04.07.2017	19.35	0.2	22.12.2017	19.96	-0.13
11.07.2017	19.45	0.1	26.12.2017	20.3	0.34
			29.12.2017	20.24	-0.06

Table 3.2.2: Contains observed baselines H, D & Z (January to December) by means of the Wild-T & Mag-01H DI-Flux magnetometer and the GSM 19 Overhauser proton magnetometer. ΔH , ΔD and ΔZ indicates the differences between current and previous baselines of H, D and Z.

			Horizontal Intensity		Declination		Vertical Intensity	
M	D	UT	H (nT)	ΔH (nT)	D	D (')	Z (nT)	Z (nT)
Jan	1	11:42	39472.12	0.52	-40.98	-0.36	17799.33	-0.22
	6	06:06	39471.23	-0.89	-41	-0.02	17799.27	-0.06
	10	06:10	39471.39	0.16	-40.92	0.08	17799.46	0.19
	13	06:10	39471.99	0.6	-40.95	-0.03	17799.6	0.14
	17	05:36	39471.31	-0.68	-40.93	0.02	17799.2	-0.4
	20	06:10	39471.58	0.27	-40.91	0.02	17799.52	0.32
Feb	3	06:00	39471.54	-0.04	-40.87	0.04	17799.23	-0.29
	13	04:45	39471.74	0.2	-40.76	0.11	17799.49	0.26
	27	11:18	39471.43	-0.31	-40.83	-0.07	17799.25	-0.24
Mar	7	06:06	39471.25	-0.18	-40.83	0	17799.13	-0.12
	15	11:36	39471.66	0.41	-40.92	-0.09	17799.1	-0.03
	21	06:00	39471.39	-0.27	-40.87	0.05	17799.06	-0.04
	28	05:45	39471.33	-0.06	-40.94	-0.07	17799.15	0.09
Apr	4	06:00	39471.27	-0.06	-40.83	0.11	17799.15	0
	12	04:40	39471.14	-0.13	-41	-0.17	17799.31	0.16
	18	11:30	39471.27	0.13	-41.02	-0.02	17799.22	-0.09
	26	11:50	39471.12	-0.15	-41.16	-0.14	17799.17	-0.05
May	2	11:30	39470.52	-0.6	-41.2	-0.04	17799.11	-0.06
	9	11:30	39470.95	0.43	-41.15	0.05	17799.05	-0.06
	16	11:36	39470.35	-0.6	-41.23	-0.08	17799.08	0.03
	23	11:30	39470.09	-0.26	-41.2	0.03	17799.08	0
	30	11:30	39470.74	0.65	-41.32	-0.12	17799.16	0.08
Jun	13	05:50	39470.61	-0.13	-41.22	0.1	17799.49	0.33
	20	06:00	39470.43	-0.18	-41.25	-0.03	17799.09	-0.4
	28	11:15	39470.12	-0.31	-41.1	0.15	17799.07	-0.02
Jul	4	06:00	39469.54	-0.58	-41.14	-0.04	17799.09	0.02
	11	06:18	39469.56	0.02	-41.24	-0.1	17799.12	0.03
	18	11:30	39469.83	0.27	-41.17	0.07	17799.05	-0.07
	27	04:40	39469.91	0.08	-41.26	-0.09	17799.2	0.15
Aug	1	06:15	39469.36	-0.55	-41.15	0.11	17799.16	-0.04
	8	10:00	39469.87	0.51	-41.17	-0.02	17799.22	0.06
	17	05:30	39469.28	-0.59	-41.17	0	17799.14	-0.08
	22	09:10	39469.08	-0.2	-41.2	-0.03	17799.16	0.02
	29	06:20	39468.51	-0.57	-41.15	0.05	17799.16	0
Sep	5	09:30	39468.16	-0.35	-41.18	-0.03	17799.14	-0.02

	12	06:00	39468.65	0.49	-41.23	-0.05	17799.08	-0.06
	19	08:50	39468.71	0.06	-41.12	0.11	17799.9	0.82
	26	05:00	39468.74	0.03	-41.12	0	17799.94	0.04
Oct	10	06:00	39468.27	-0.47	-41.07	0.05	17799.74	-0.2
	14	06:10	39468.35	0.08	-41.08	-0.01	17799.81	0.07
	20	06:15	39468.59	0.24	-41.17	-0.09	17799.67	-0.14
	26	09:30	39468.75	0.16	-41.25	-0.08	17799.65	-0.02
	Nov	1	04:15	39468.96	0.21	-41.15	0.1	17799.77
Nov	9	04:30	39468.59	-0.37	-41.13	0.02	17799.34	-0.43
	15	05:30	39467.27	-1.32	-41.19	-0.06	17799.86	0.52
	17	09:10	39467.59	0.32	-41.05	0.14	17799.45	-0.41
	23	09:10	39467.38	-0.21	-41.12	-0.07	17799.36	-0.09
	Dec	1	09:40	39467.48	0.1	-41.13	-0.01	17799.21
Dec	5	09:40	39467.85	0.37	-41.17	-0.04	17799.13	-0.08
	11	06:30	39467.01	-0.84	-41.22	-0.05	17799.82	0.69
	15	06:10	39467.51	0.5	-41.23	-0.01	17799.08	-0.74
	20	06:30	39467.53	0.02	-41.26	-0.03	17799.15	0.07
	22	08:50	39467.54	0.01	-41.07	0.19	17799.64	0.49
	26	06:00	39467.56	0.02	-41.13	-0.06	17799.58	-0.06
	29	05:30	39467.51	-0.05	-41.09	0.04	17799.44	-0.14

In figure 3.2a red colour small circles indicates observed baseline values, the blue line is the adopted baselines for all days. This adopted baselines are reduced using cubic smoothing for the observed baseline values. This adopted values are added to daily variations of Magnetic field.

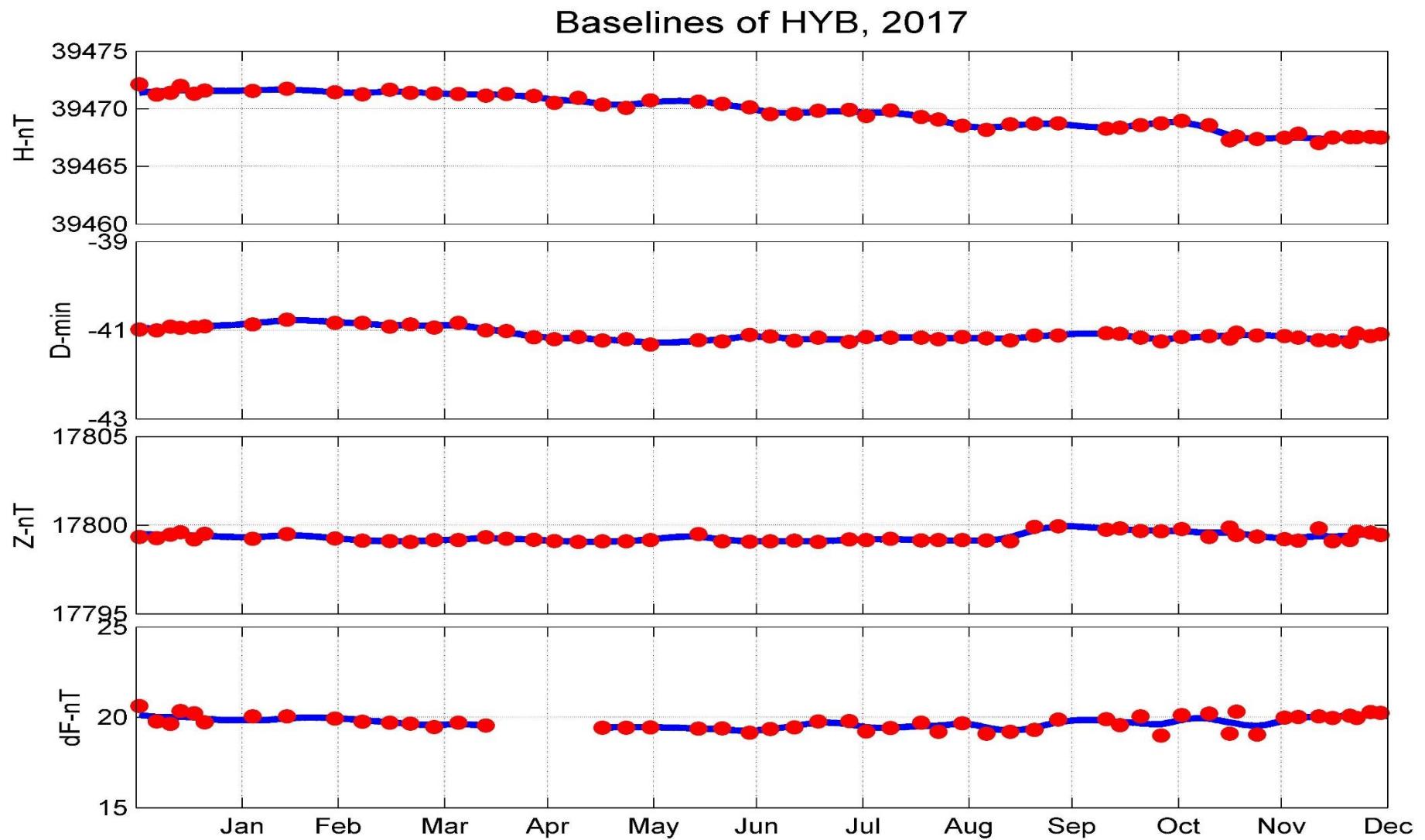


Figure 3.2a: Baselines (observed & adopted) of HDZ during 2017

3.3. hourly means of H, D & Z with IQ & ID days

The following figures are the hourly mean plots of HDZ along with IQ (green) & ID (red) days marking over the year 2017.

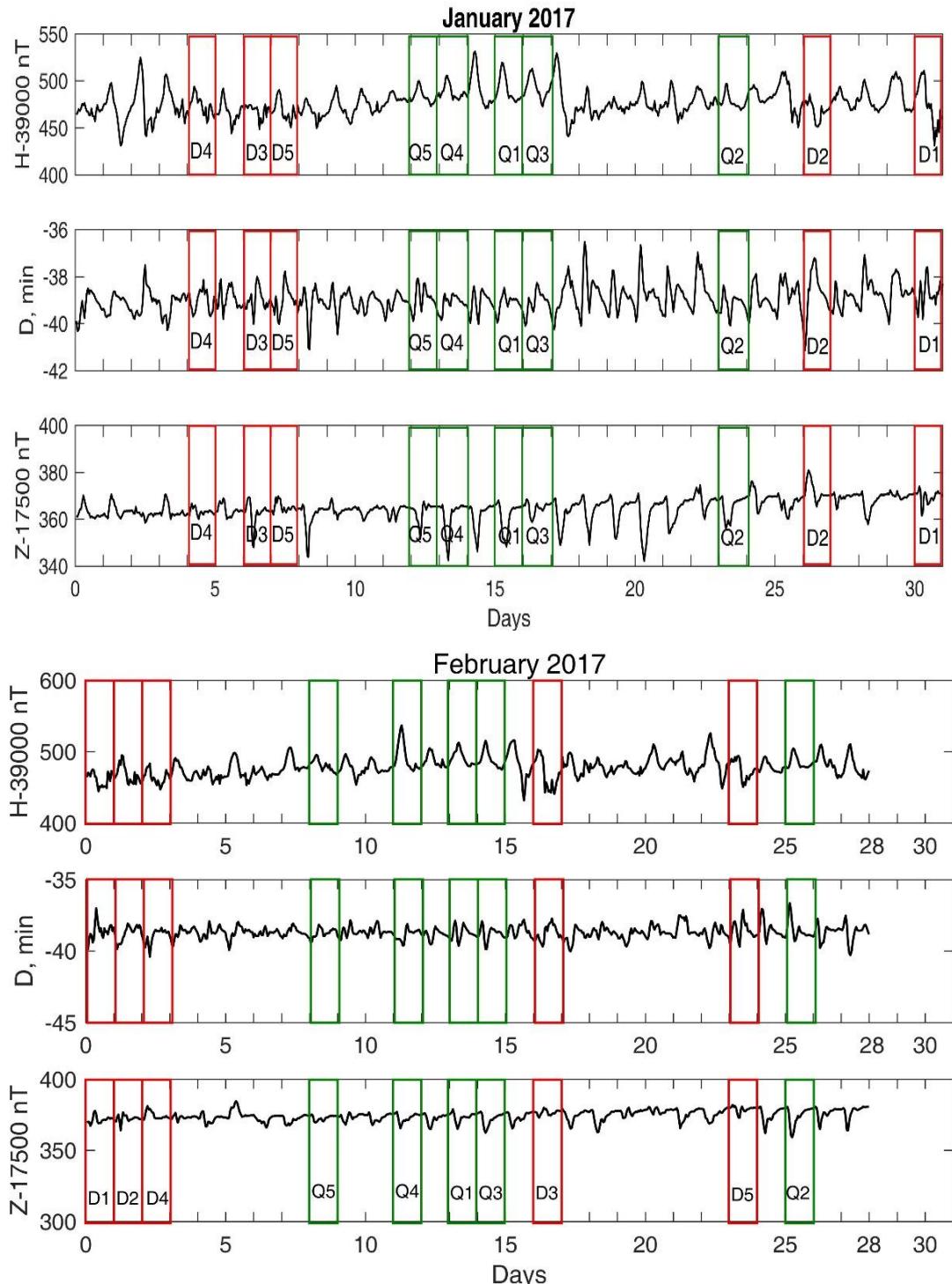


Figure 3.3a: Hourly mean plots of HDZ along with IQ & ID days for January and February

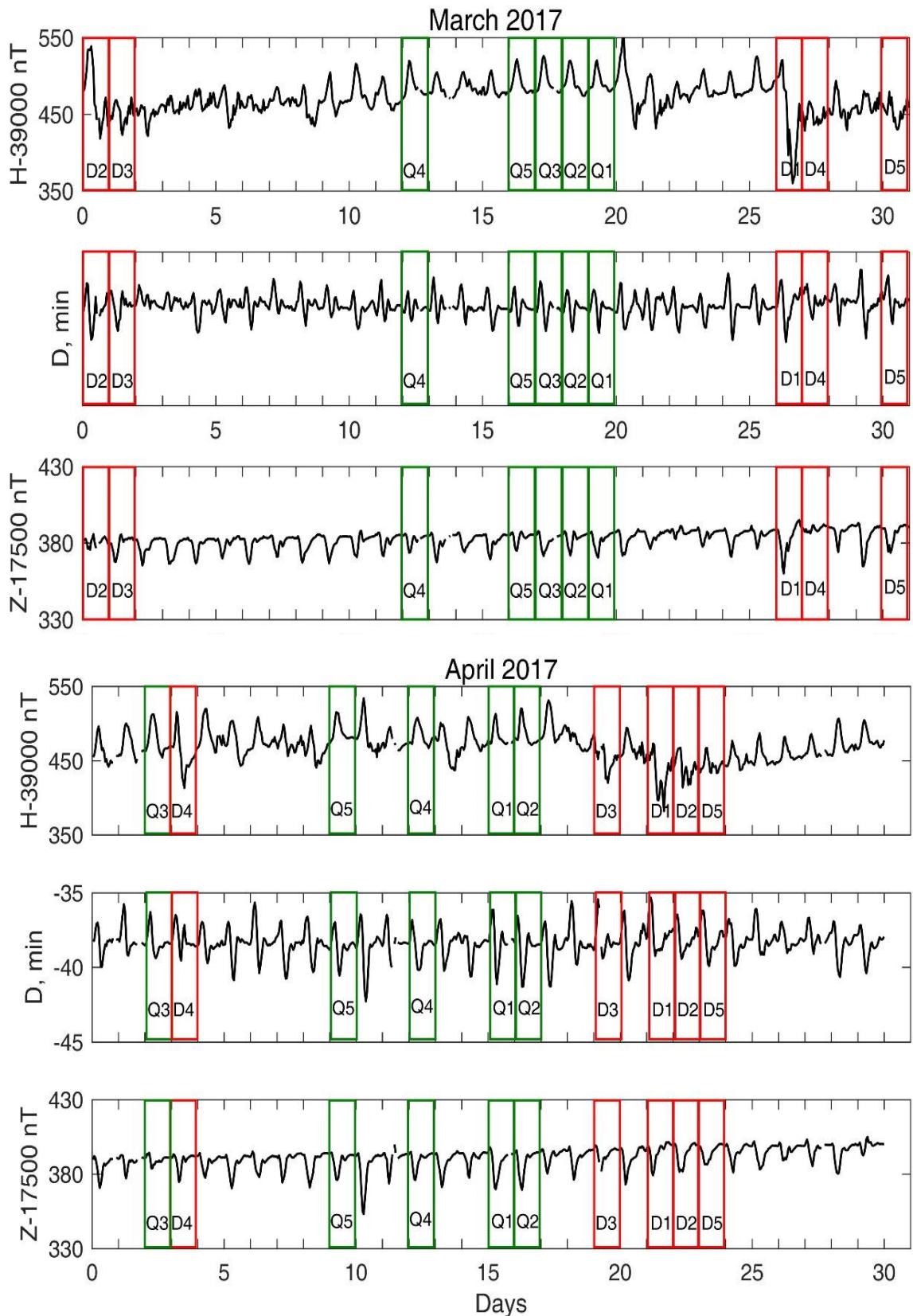


Figure 3.3b: Hourly mean plots of HDZ along with IQ & ID days for March and April

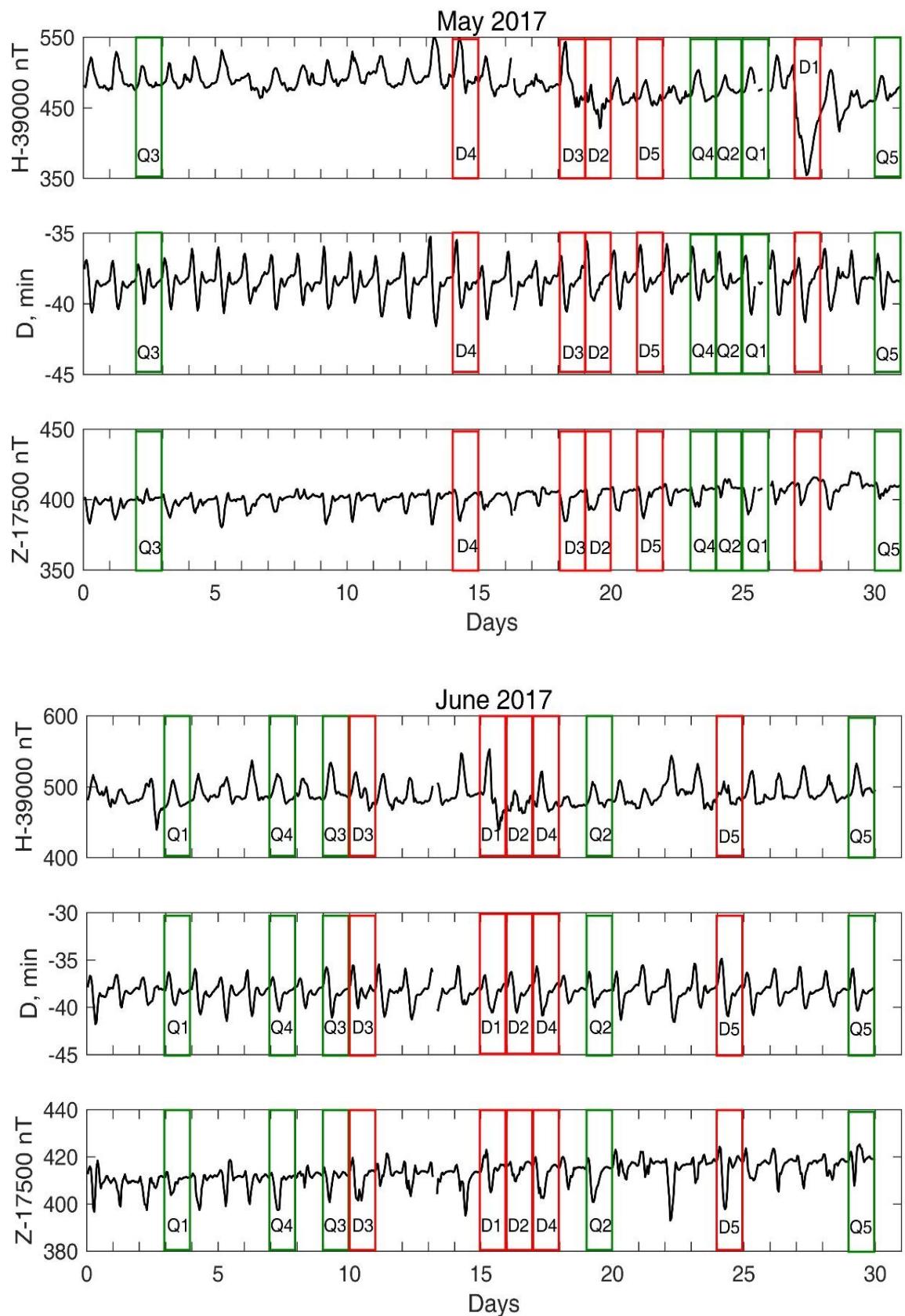


Figure 3.3c: Hourly mean plots of HDZ along with IQ & ID days for May and June

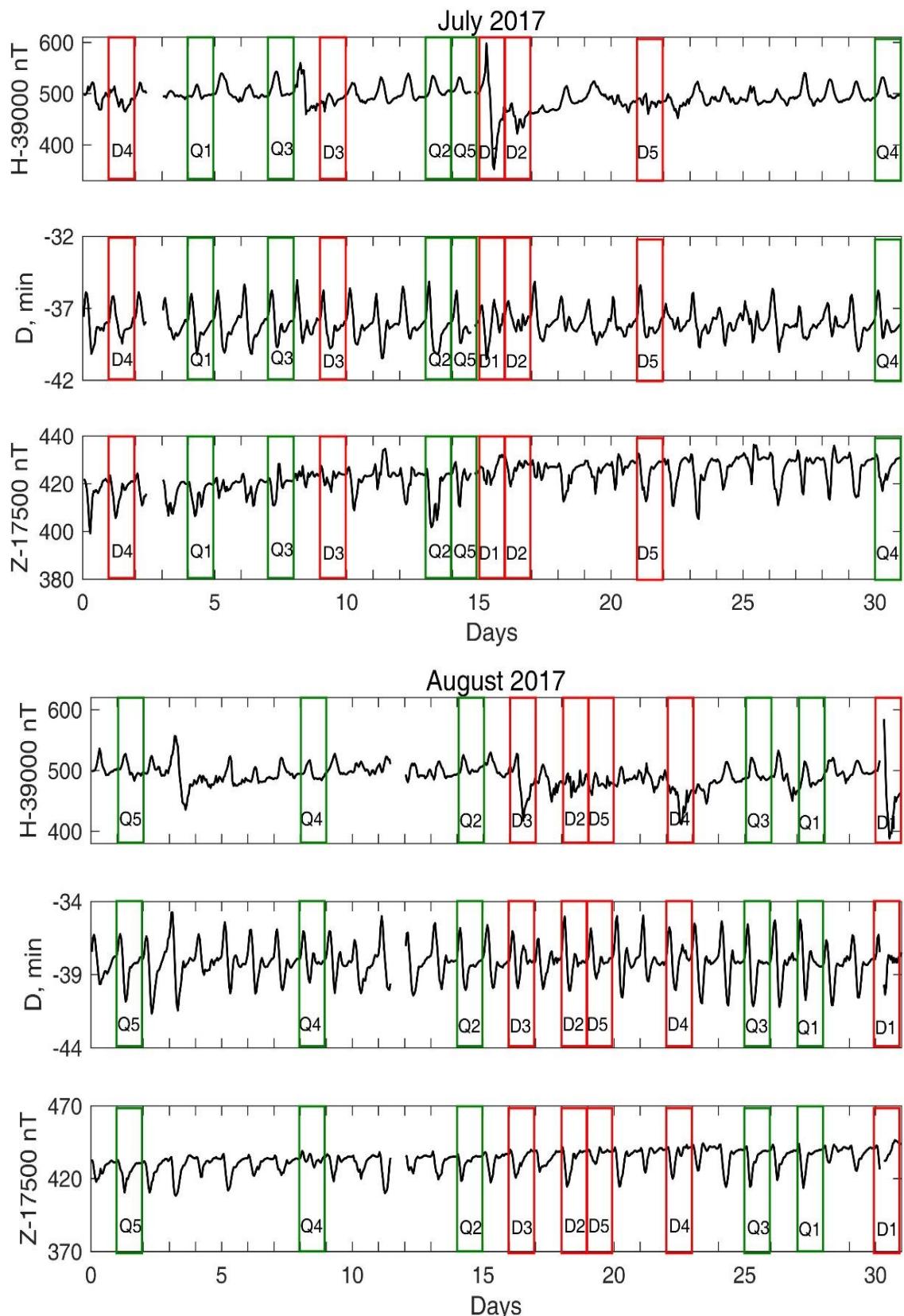
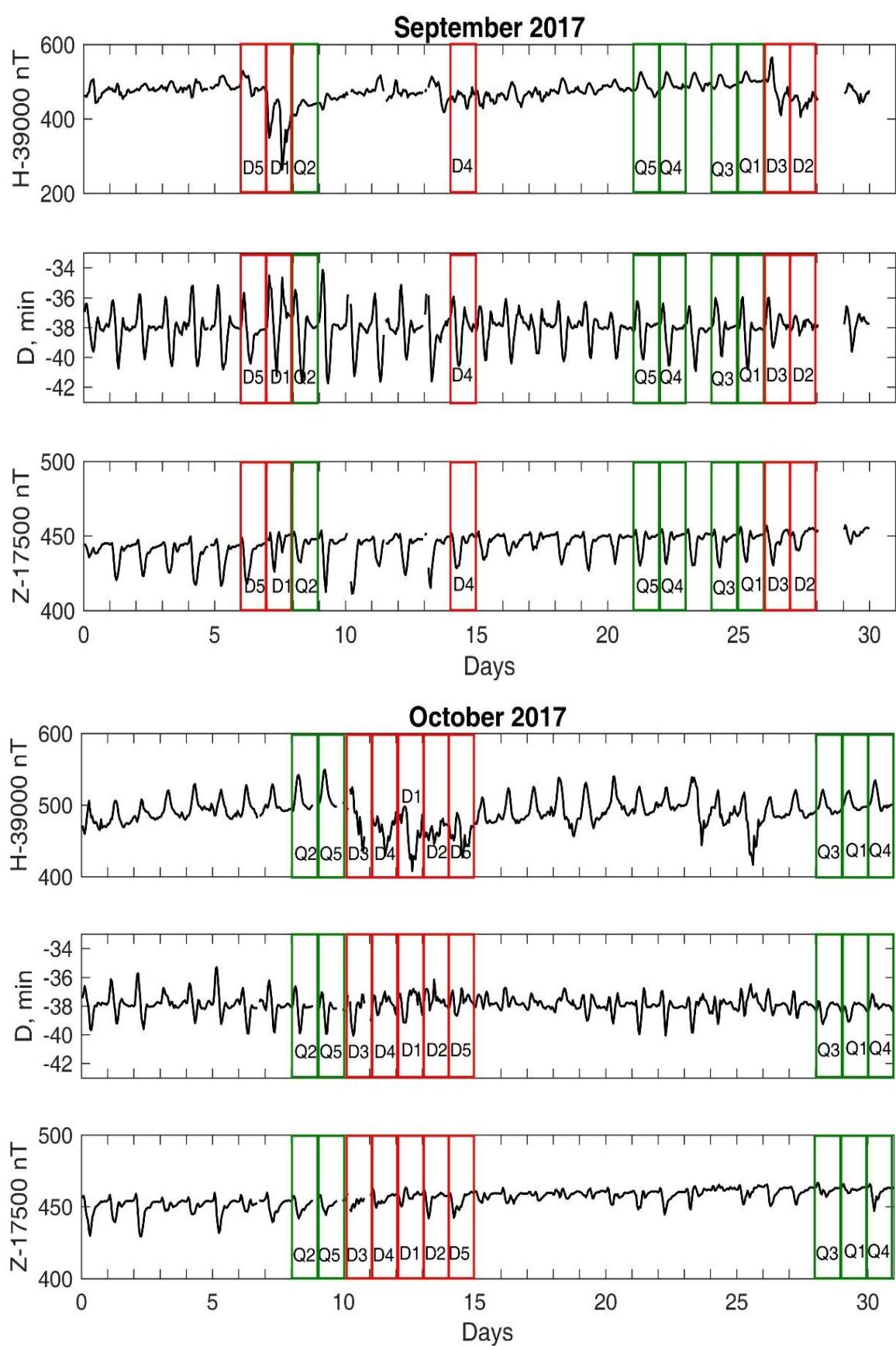


Figure 3.3d: Hourly mean plots of HDZ along with IQ & ID days for July and August



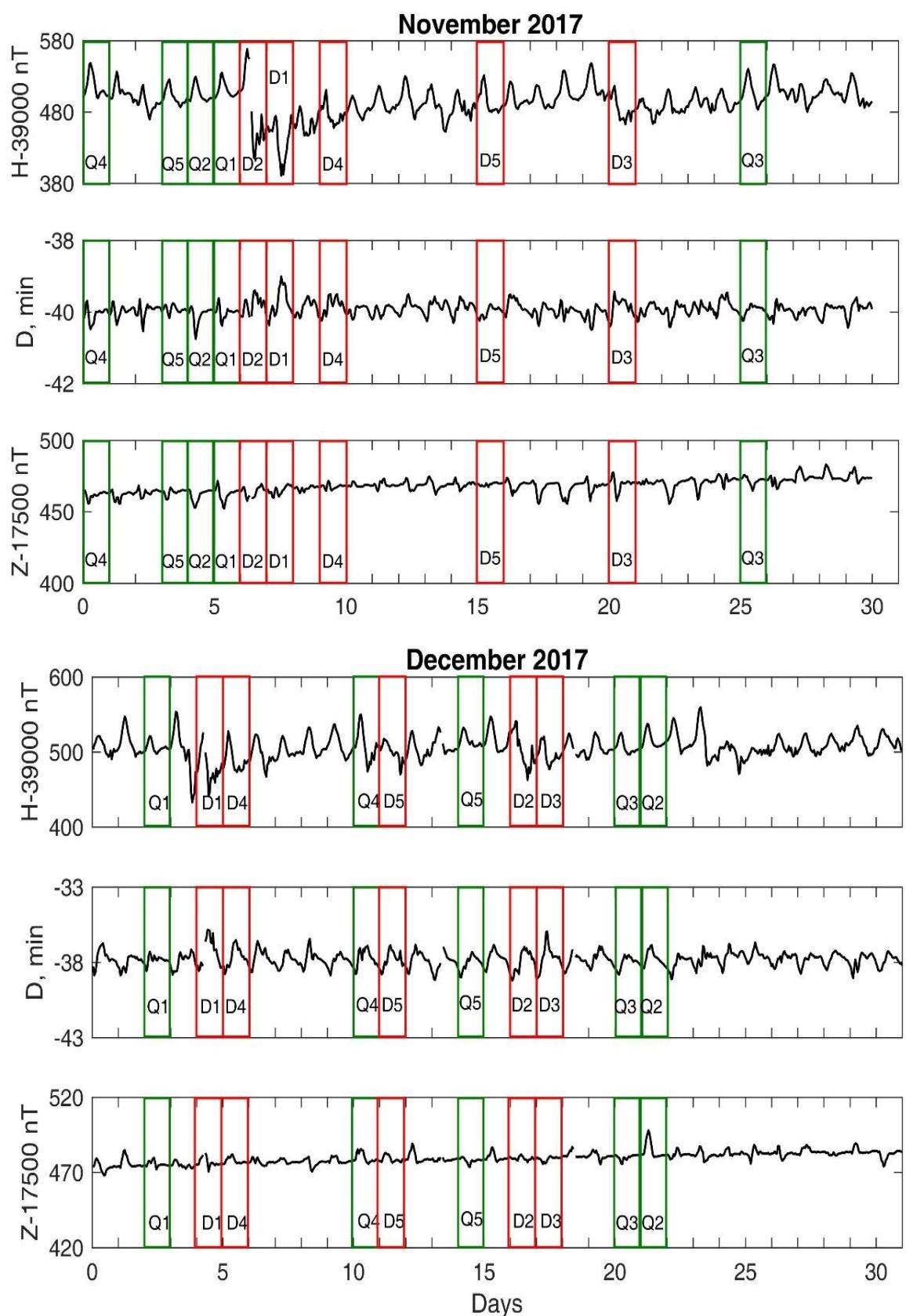


Figure 3.3f: Hourly mean plots of HDZ along with IQ & ID days for November and December

3.4. Annual variation of HDZ during 2017

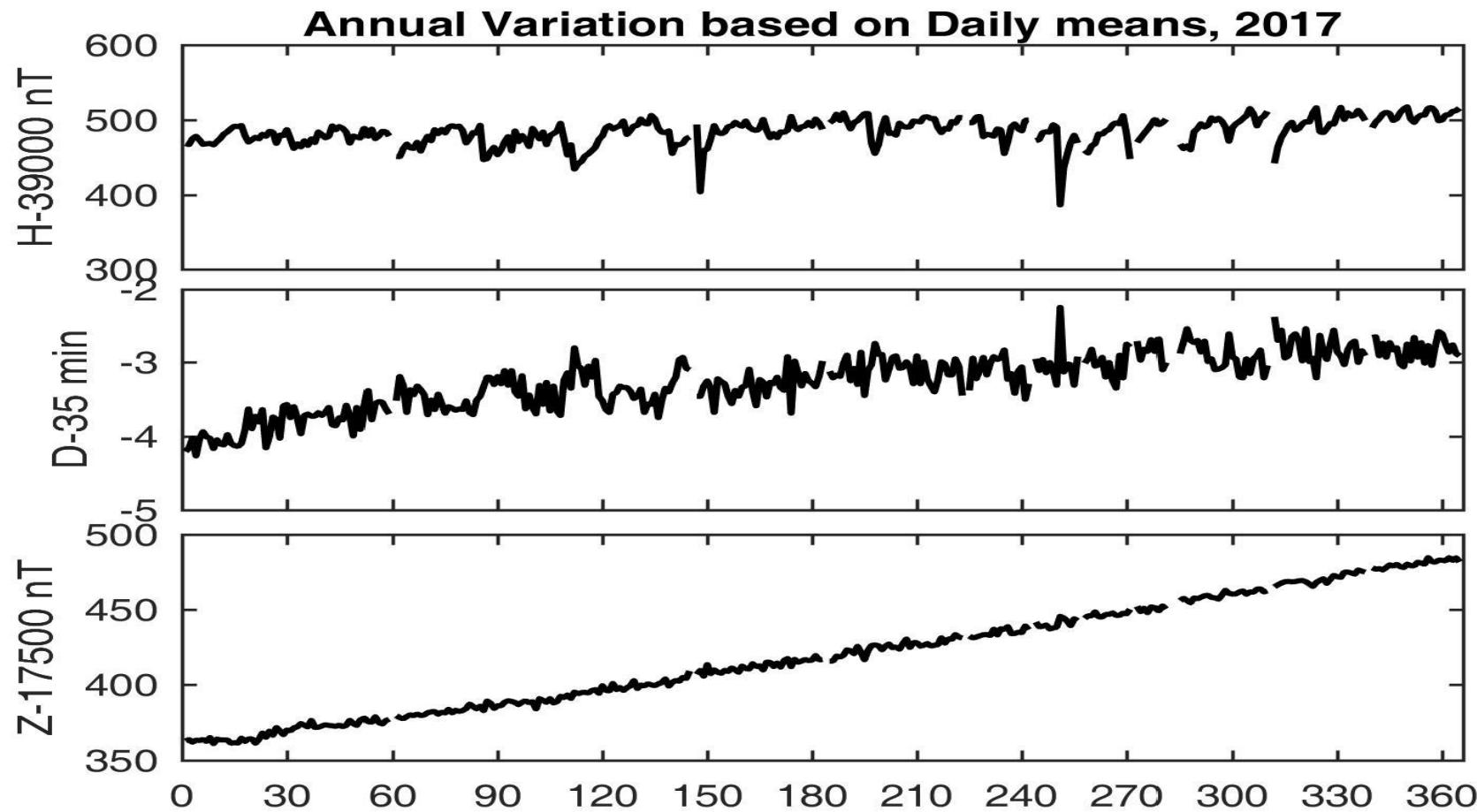


Figure 3.4a: Annual variation based on daily means of diurnal variations of H, D and Z these annual variations were observed for the year 2017.

3.5. Deviations of daily means from the monthly mean of components H, D & Z, 2017

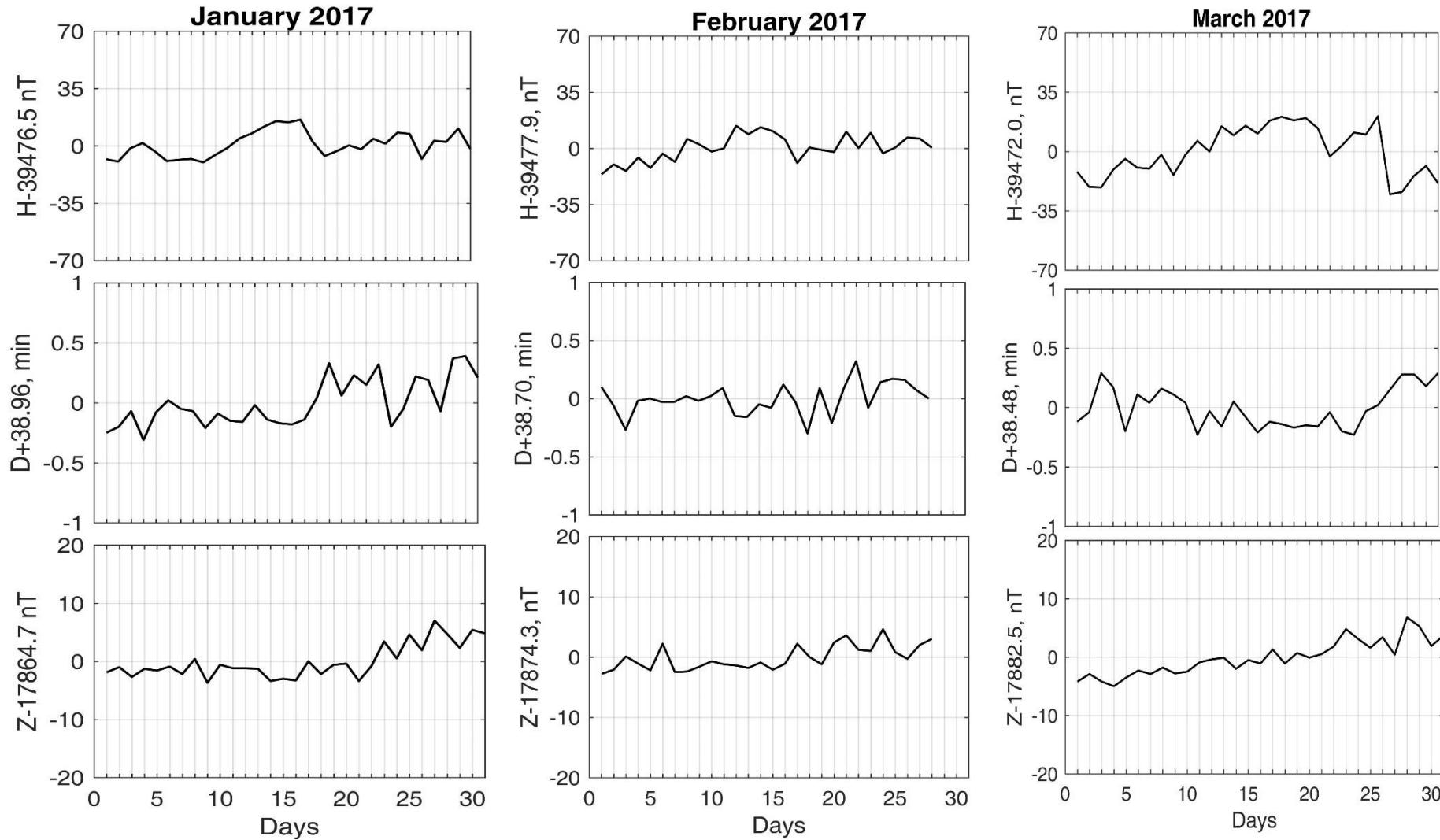


Figure 3.5a: Daily means deviations for the months of January to March 2017

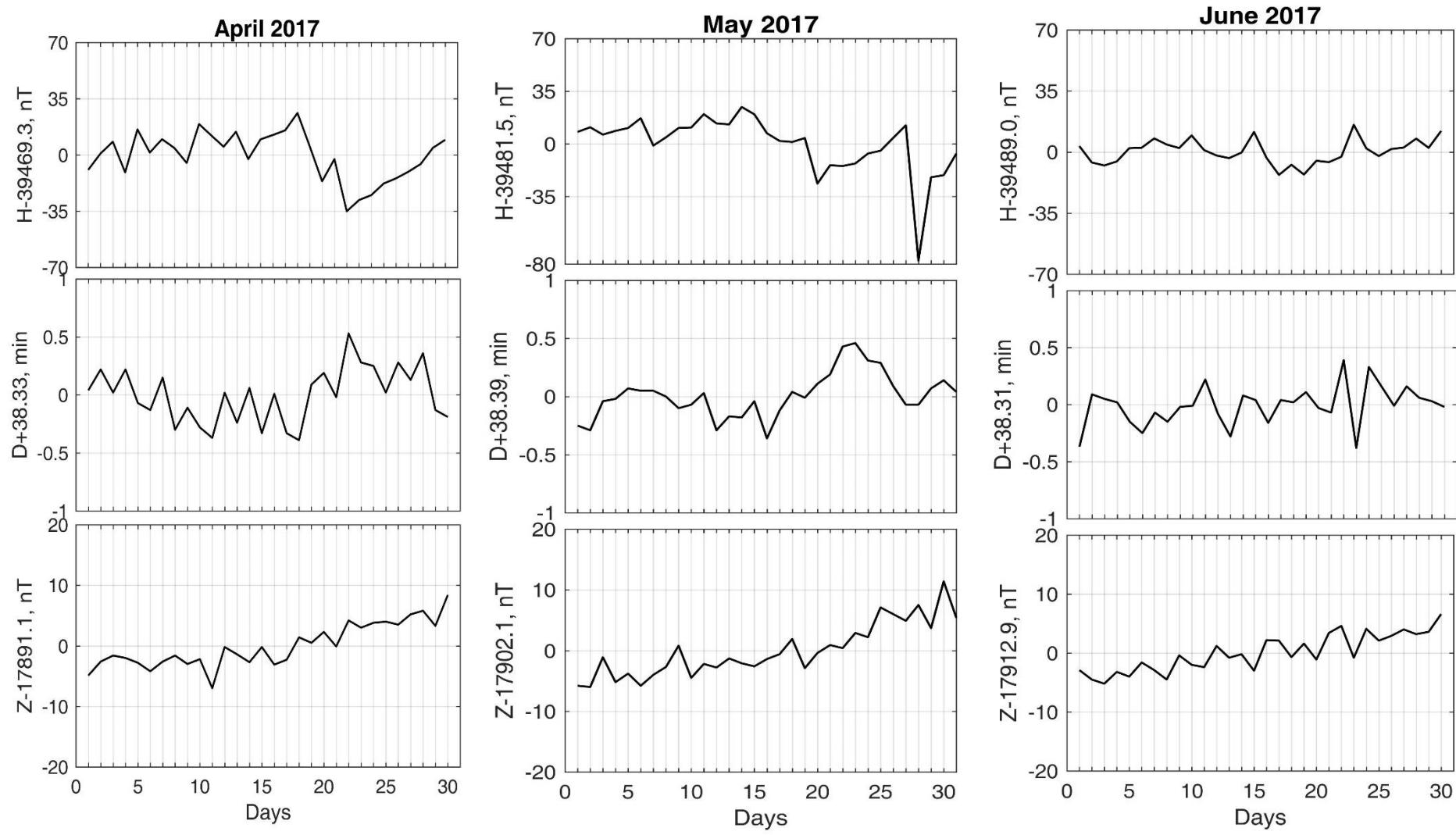


Figure 3.5b: Daily means deviations for the months of April to June 2017

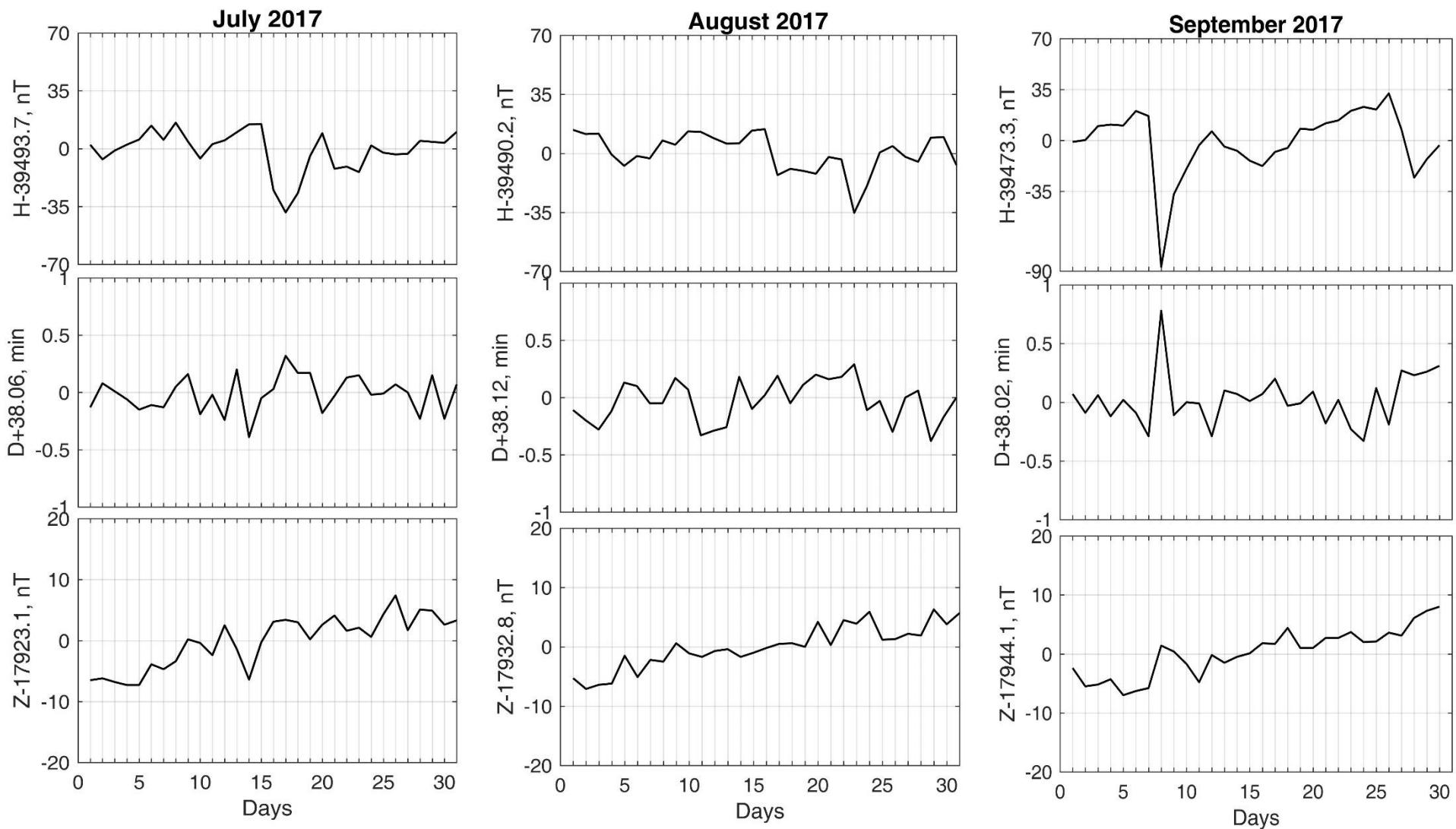


Figure 3.5c: Daily means deviations for the months of July to September 2017

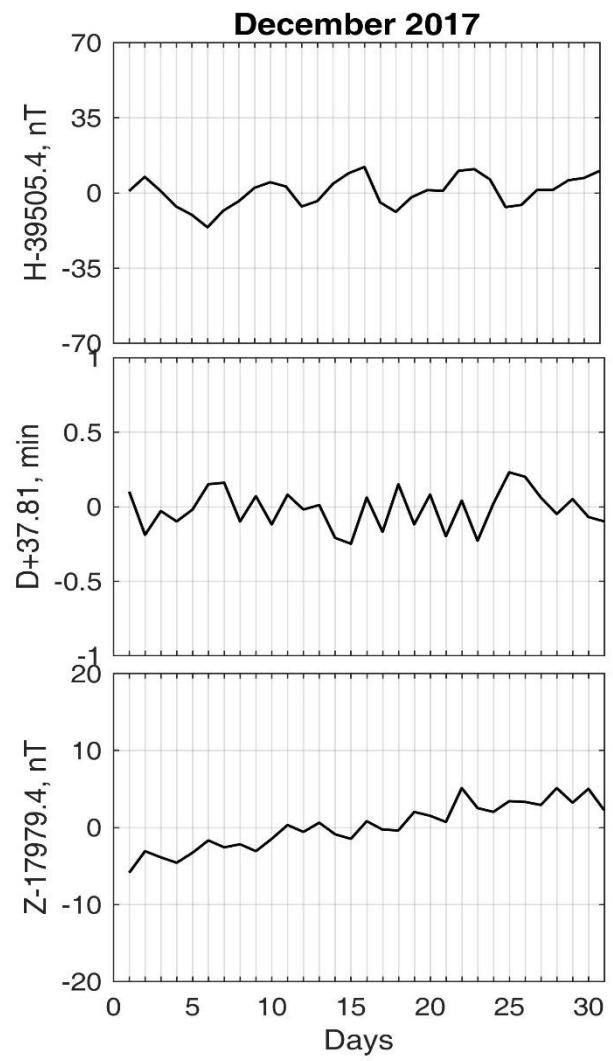
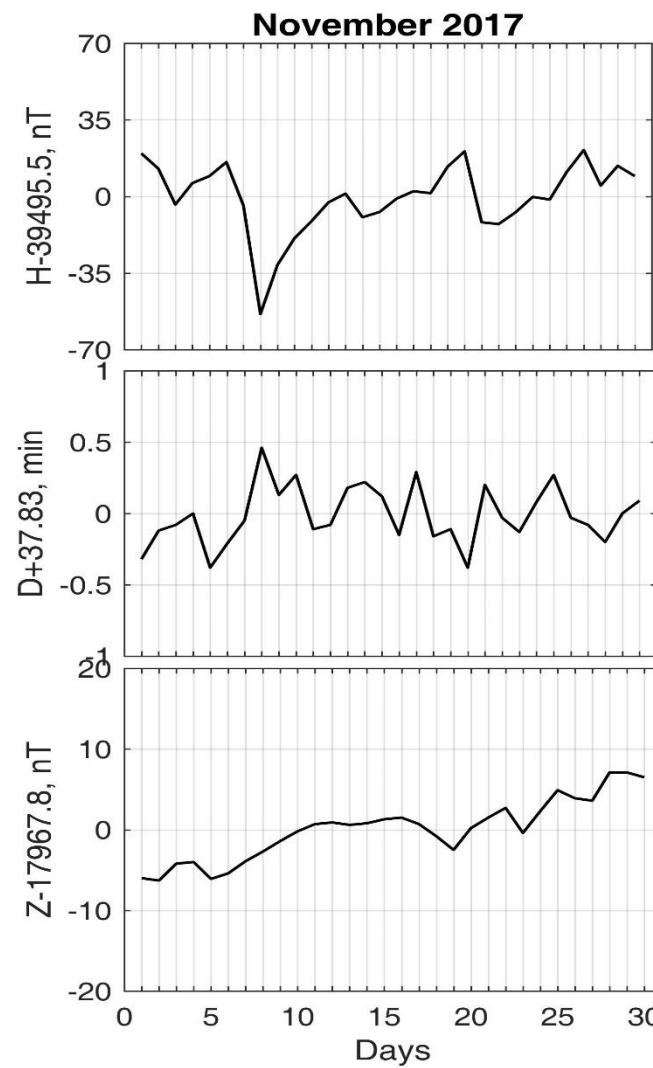
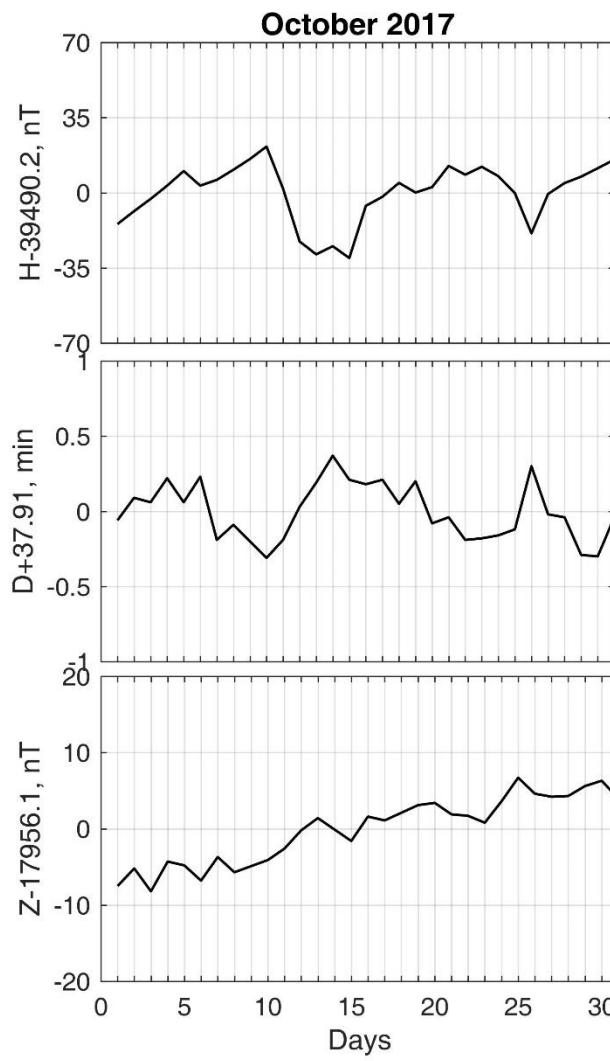


Figure 3.5d: Daily means deviations for the months of October to December 2017

3.6. Monthly and Annual Mean values of H, D, Z, F, I from HYB, 2017

Month	D	I	H-nT	Z-nT	F-nT
Jan	0° 39.0'	24° 20.76'	39477.3	17977.6	43331.3
Feb	0° 38.7'	24° 21.54'	39478.2	17978.8	43336.1
Mar	0° 38.5'	24° 22.35'	39471.7	17972.1	43333.7
Apr	0° 38.3'	24° 23.07'	39469.0	17969.3	43334.7
May	0° 38.4'	24° 23.45'	39481.5	17981.2	43350.5
Jun	0° 38.3'	24° 23.99'	39489.4	17989.3	43362.3
Jul	0° 38.1'	24° 24.6'	39492.9	17992.8	43369.6
Aug	0° 38.2'	24° 25.37'	39490.7	17990.3	43371.9
Sep	0° 38.0'	24° 26.77'	39472.4	17972.4	43359.7
Oct	0° 37.9'	24° 27.08'	39490.2	17990.2	43380.7
Nov	0° 37.8'	24° 27.77'	39495.1	17494.4	43390.0
Dec	0° 37.8'	24° 28.26'	39505.9	18005.9	43404.8
Mean	0° 38.25'	24° 24.58'	39484.5	17942.9	43360.4

3.7. Deviation of the Monthly means from the Annual mean values of H, D, Z, F, I at HYB, 2017

Month	D-min	I-min	H-nT	Z-nT	F-nT
Jan	-0.75	3.82	7.2	-35.4	29.1
Feb	-0.45	3.04	6.3	-36.6	24.3
Mar	-0.25	2.23	12.8	-29.9	26.7
Apr	-0.05	1.51	15.5	-27.1	25.7
May	-0.15	1.13	3.0	-39.0	9.9
Jun	-0.05	0.59	-4.9	-47.1	-1.9
Jul	0.15	-0.02	-8.4	-50.6	-9.2
Aug	0.05	-0.79	-6.2	-48.1	-11.5
Sep	0.25	-2.19	12.1	-30.2	0.7
Oct	0.35	-2.5	-5.7	-48.0	-20.3
Nov	0.45	-3.19	-10.6	447.8	-29.6
Dec	0.45	-3.68	-21.4	-63.7	-44.4

3.8. K-indices & daily sum, HYB 2017

Table 3.8.1: Upper K index limits:

K	H Range (nT)
0	< 3
1	< 6
2	< 12
3	< 24
4	< 42
5	< 72
6	< 120
7	< 198
8	< 300
9	>300

K-index quantifies disturbance of Geomagnetic field. It is calculated using Horizontal component (H) field variations over 3-hour period interval. Every day we have 8 K-index values ranging from 0-9. These K-index values calculated using semi-logarithmic scale.

In this report, K-index frequencies explain the repetition of K-index values over a day, Month and year

The following Tables contains K -indices data and its daily sum data. This data is generated by KASM (from INTERMAGNET).

D	January			February			March			April			May			June			
	1234	5678	Sum	1234	5678	Sum	1234	5678	Sum	1234	5678	Sum	1234	5678	Sum	1234	5678	Sum	
1	2222	3421	18	3233	4544	28	2334	5344	28	1223	2421	17	2201	0121	09	1221	2322	15	
2	1111	1211	09	2323	3442	23	3324	4441	25	1121	2310	11	2212	1101	10	1111	1022	09	
3	1133	3332	19	2232	3231	18	3333	3420	21	0121	1200	07	1111	1201	08	1123	3421	17	
4	1222	3333	19	1212	2221	13	3322	2324	21	2433	3113	20	1112	1123	12	1001	1000	03	
5	2322	3433	22	1223	2341	18	1223	3342	20	2322	2433	21	3211	1010	09	1211	2211	11	
6	2223	3322	19	2212	3422	18	2123	4443	23	1212	2310	12	2321	1011	11	2111	1010	07	
7	2222	4332	20	2212	3220	14	1223	2432	19	1122	1023	12	1222	0241	14	2221	1101	10	
8	2213	3343	21	1111	2111	09	2112	2242	16	2322	2333	20	2212	1221	13	1111	0102	07	
9	2232	3312	18	1122	2331	15	2223	3231	18	2223	3312	18	1112	3212	13	2111	1000	06	
10	1121	1321	12	1011	1222	10	1233	3211	16	2221	1111	11	2210	3112	12	0211	0000	04	
11	1121	1330	12	1111	0100	05	0021	0012	06	1232	2341	18	2432	2112	17	1112	4333	18	
12	1200	0011	05	0011	1221	08	2111	2210	10	321-	-000	06	2232	3111	15	1211	2222	13	
13	0111	1212	09	1111	1322	12	0111	1000	04	1110	0131	08	1112	1111	09	2223	1110	12	
14	1211	1110	08	0110	0000	02	0111	1110	06	2322	2232	18	3224	3232	21	0112	2111	09	
15	1211	1130	10	0111	1120	07	1222	1013	12	1111	1120	08	1334	2232	20	1121	1010	07	
16	0111	0010	04	0230	3332	16	2110	1011	07	1121	1010	07	1232	3110	13	1243	3333	22	
17	0110	1201	06	1334	2434	24	0111	0112	07	1111	1100	06	1122	1211	11	2322	2243	20	
18	1332	4332	21	3322	2333	21	0000	0001	01	1110	1212	09	3321	1112	14	2222	2211	14	
19	2222	2221	15	2221	1320	13	0001	0011	03	3322	0233	18	2441	3443	25	1211	1000	06	
20	1221	2231	14	1221	2341	16	0110	0211	06	3433	2331	22	3333	4332	24	1211	0000	05	
21	2222	2333	19	1110	1102	07	1443	3453	27	1220	2443	18	2221	2132	15	0011	1221	08	
22	2221	3221	15	2222	2221	15	3333	3443	26	3334	4533	28	1111	3321	13	2210	0022	09	
23	0120	1221	09	2222	2232	17	2212	2322	16	3353	5432	28	1311	1132	13	2120	1022	10	
24	0110	0010	03	2334	3321	21	2121	2100	09	2323	2232	19	1111	0000	04	1222	2231	15	
25	1211	1001	07	2222	1002	11	0110	1100	04	1222	3221	15	0110	1101	05	1232	1311	14	
26	0133	4342	20	0110	1000	03	1011	1102	07	2221	2121	13	1111	1000	05	1213	1131	13	
27	3322	3421	20	0212	2222	13	2446	5353	32	1222	1110	10	1000	1324	11	1221	1101	09	
28	2211	1112	11	1122	1132	13	4324	3331	23	1111	1-12	08	4432	2210	18	2221	1000	08	
29	1111	2100	07		2223	3422	20				1221	1122	12	0112	3311	12	1221	1000	07
30	1221	3112	13		2322	3443	23				0101	1111	06	2322	1100	11	1111	1011	07
31	2223	3443	23		3444	4433	29							0100	2112	07			

D	July			August			September			October			November			December		
	1234	5678	Sum	1234	5678	Sum	1234	5678	Sum	1234	5678	Sum	1234	5678	Sum	1234	5678	Sum
1	2323	3342	22	1132	2101	11	1334	4213	21	2131	1411	14	1111	2011	08	1211	2330	13
2	3334	3233	24	1121	2211	11	2343	1322	20	1211	1100	07	2222	2222	16	1111	1200	07
3	231-	-----	---	0001	1233	10	1211	2311	12	2231	0110	10	2222	3111	14	1000	0001	02
4	1211	0121	09	3543	3333	27	2212	1334	18	1111	1121	09	1211	1101	08	0221	2434	18
5	1110	0000	03	2322	3332	20	3232	2230	17	2010	0123	09	1110	0110	05	2334	3433	25
6	1121	1113	11	2324	2121	17	2222	2203	15	2221	1212	13	0110	0000	02	2312	2231	16
7	1212	0111	09	1122	2110	10	3333	2235	24	1110	1211	08	1333	4454	27	1112	3321	14
8	1111	0011	06	1111	1210	08	6444	6643	37	1210	0100	05	3224	5323	24	1121	1110	08
9	4334	2332	24	1111	2111	09	2200	1000	05	1010	00--	---	2233	2322	19	1112	1220	10
10	3321	1112	14	0121	2101	08	1220	0013	09	1000	0102	04	2233	3332	21	1110	0100	04
11	2222	1211	13	2211	1221	12	3322	2222	18	2344	5432	27	2212	2221	14	1232	4341	20
12	1111	1010	06	332-	-----	---	2332	3245	24	4244	4423	27	0111	1211	08	2212	1152	16
13	1111	1010	06	2222	1111	12	4332	1220	17	2423	5344	27	0111	1310	08	1121	1232	13
14	1101	1111	07	2211	2011	10	3223	3543	25	4324	3331	23	2221	2321	15	1101	0011	05
15	0111	0110	05	2210	0110	07	3243	4353	27	3323	5421	23	1123	3533	21	0012	2122	10
16	2265	4444	31	2111	1123	12	4433	3332	25	1221	2120	11	2332	1222	17	0110	1102	06
17	2333	4321	21	2244	4343	26	2222	4421	19	1111	2110	08	1112	1001	07	1343	3442	24
18	2221	0000	07	3222	3342	21	2333	3332	22	0111	0013	07	1122	1212	12	2323	3311	18
19	0201	0111	06	3354	4422	27	1112	1331	13	2222	3421	18	1212	1111	10	1120	1221	10
20	1222	1222	14	2332	1431	19	1222	2121	13	2111	2122	12	1011	1233	12	1112	1220	10
21	2331	2312	17	2223	2222	17	1112	2021	10	1133	3322	18	3332	3432	23	0111	1100	05
22	2344	2322	22	4332	3222	21	1211	0121	09	2211	1112	11	1211	2231	13	0110	0001	03
23	2323	3223	20	1323	4551	24	0120	1131	09	2222	1211	13	0133	1123	14	1121	1111	09
24	2322	1212	15	2221	3100	11	1121	1222	12	1133	4533	23	1111	1143	13	1223	3433	21
25	2222	3222	17	0111	2012	08	2211	0100	07	2243	2322	20	3311	0110	10	2122	1231	14
26	2242	2220	16	1210	1210	08	1221	0002	08	2233	4441	23	0121	1121	09	1211	2332	15
27	1111	1202	09	1212	2243	17	3454	4243	29	1111	0121	08	3211	3121	14	1221	1323	15
28	1111	1230	10	1111	1000	05	3354	4433	29	1211	1211	10	2122	1121	12	1111	2212	11
29	0111	1110	06	2211	2332	16	-----	-----	---	1111	1110	07	1110	0221	08	0001	1120	05
30	1111	0010	05	1100	0000	02	1231	4422	19	0000	0000	00	2212	3311	15	1120	1111	08
31	1101	1000	04	2-64	4422	---				1010	1000	03				0011	0122	07

3.9. K-indices monthly wise 2017

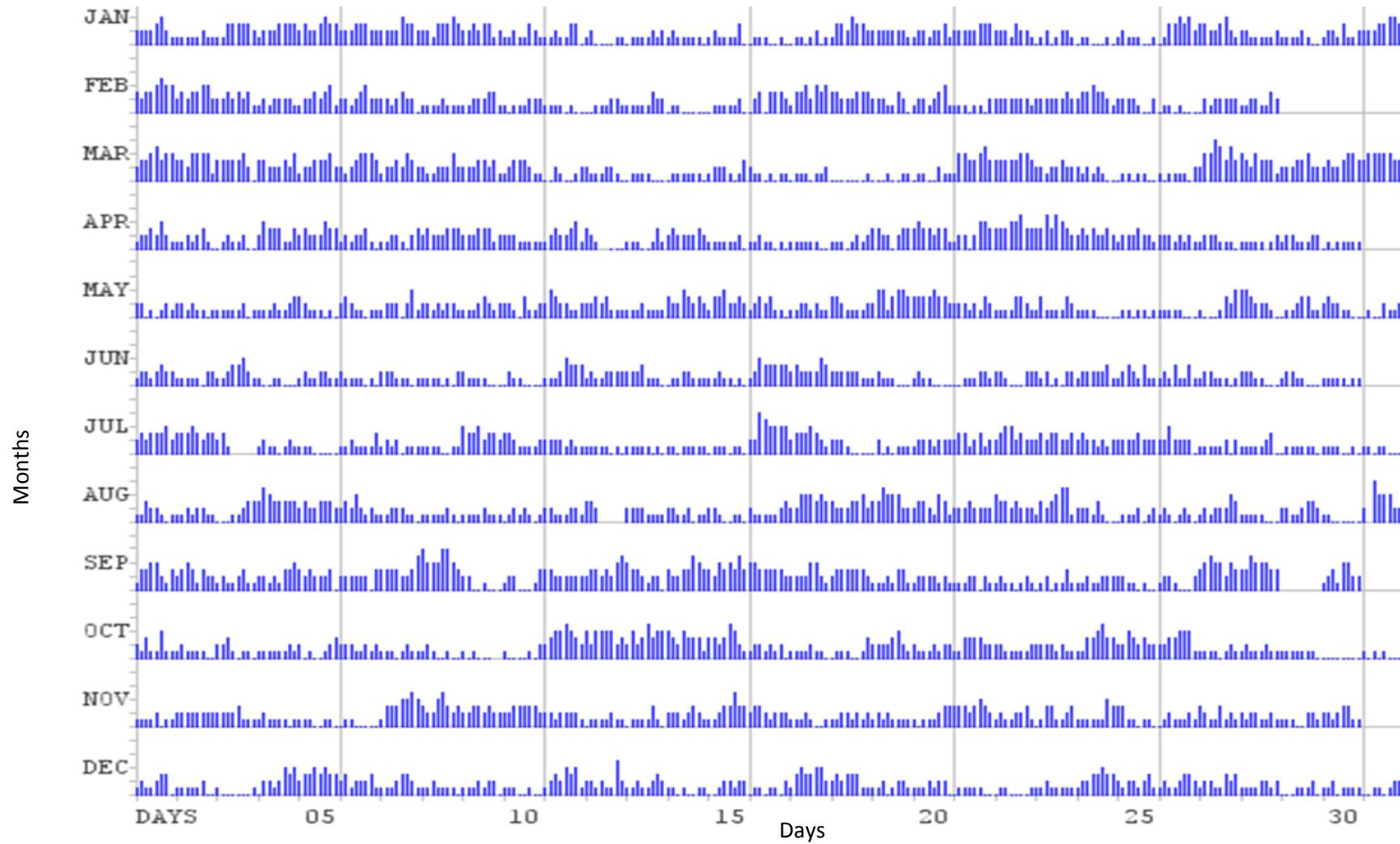


Figure 3.9a: Quick look K-index plot of HYB data over the period of 2017, X-axis contains each day 8 values.

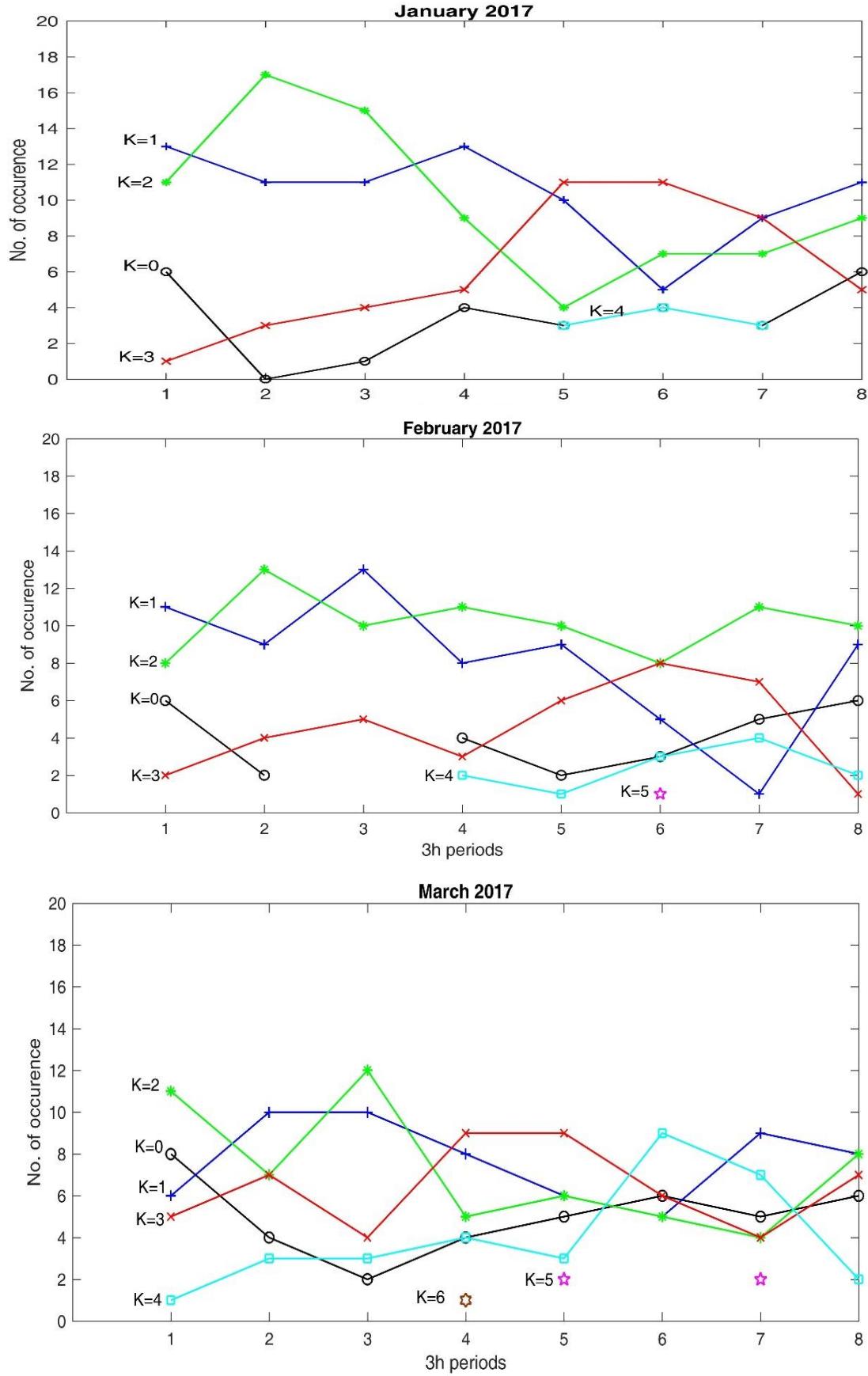
3.10. Rapid Geomagnetic Variations (SSCs & SFEs) observed at HYB during 2017

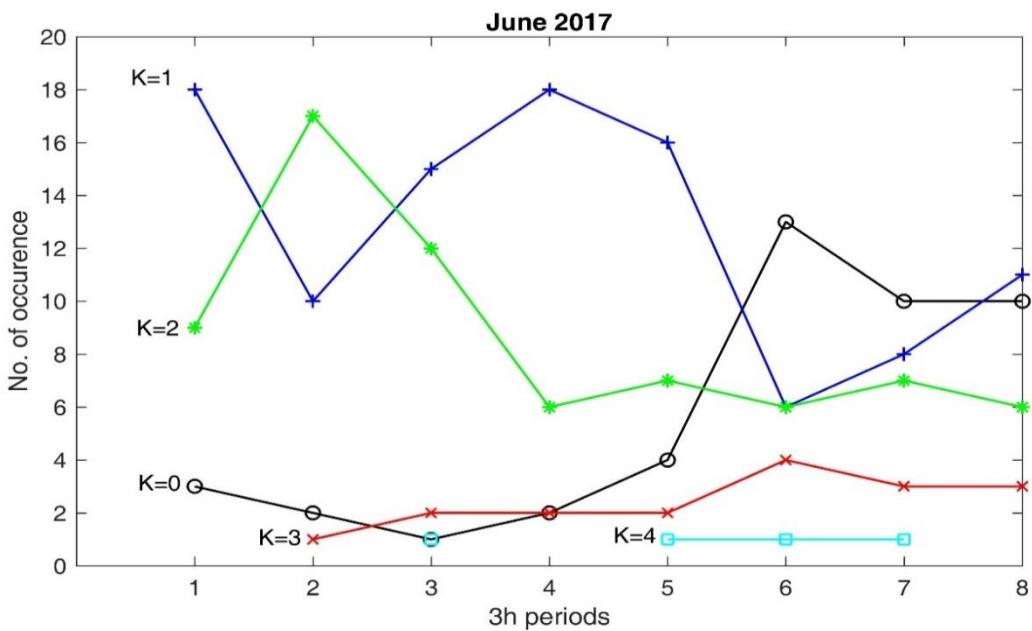
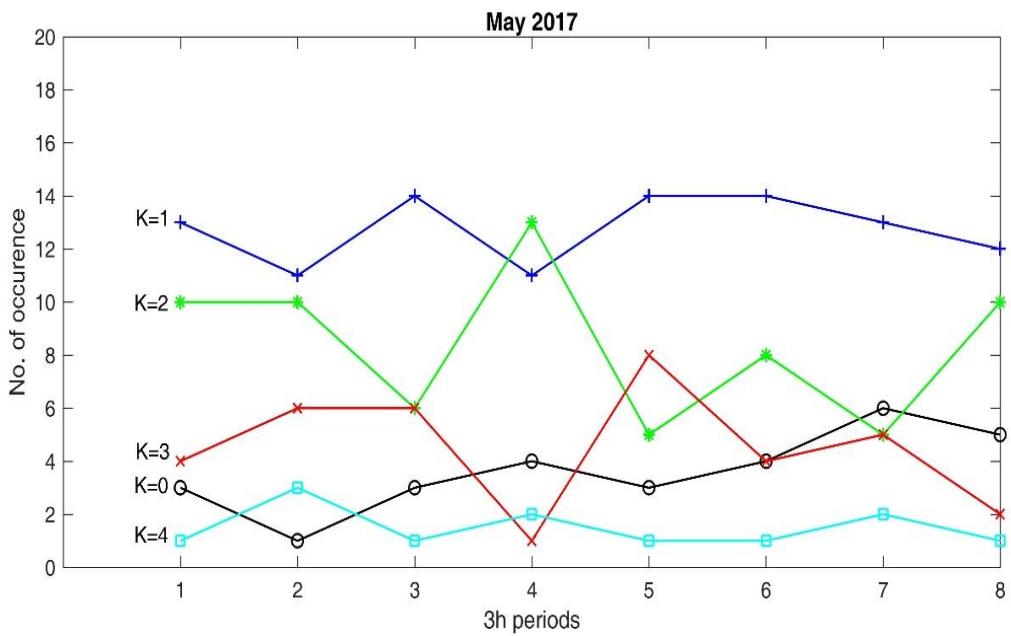
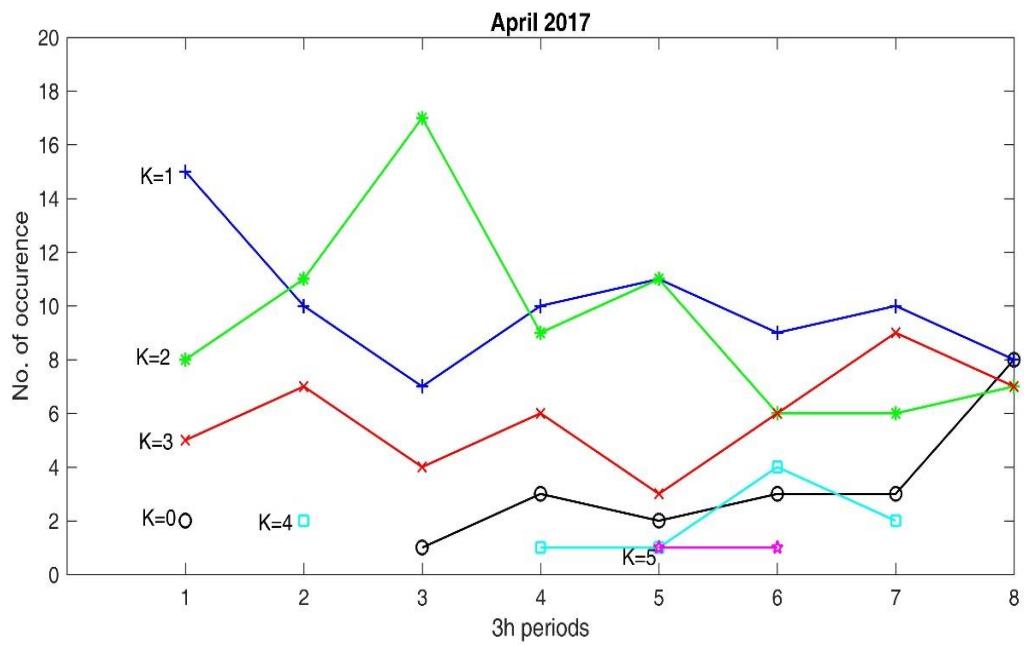
Date	Type	Quality	Initial time (UT)	Sense and amplitude of the chief movement		
				H(nT)	D(Min)	Z(nT)
26.01.2017	SSC	B	08 15	+12.09	+00.07	-01.30
21.04.2017	SSC	B	15.19	+09.80	+00.08	-00.30
27.05.2017	SSC	B	15.34	+10.30	+00.05	-00.30
03.07.2017	SSC	B	03 16	+11.90	-00.06	-01.10
16.07.2017	SSC	A	05 59	+75.60	+00.38	-06.40
18.08.2017	SSC	C	16 32	+05.30	+00.03	-00.60
31.08.2017	SSC	A	05 38	+29.60	+00.23	-02.10
07.09.2017	SSC	A	22 59	+32.00	+00.38	-02.00
12.09.2017	SSC	A	20 05	+27.50	+00.06	-01.00
21.10.2017	SSC	C	06 09	+07.20	+00.02	-00.40
25.11.2017	SSC	C	00 34	+09.50	+00.14	-00.40
12.12.2017	SSC	B	06 14	+16.40	+00.10	-01.00
15.12.2017	SSC	C	11 36	+07.20	-00.10	-00.40

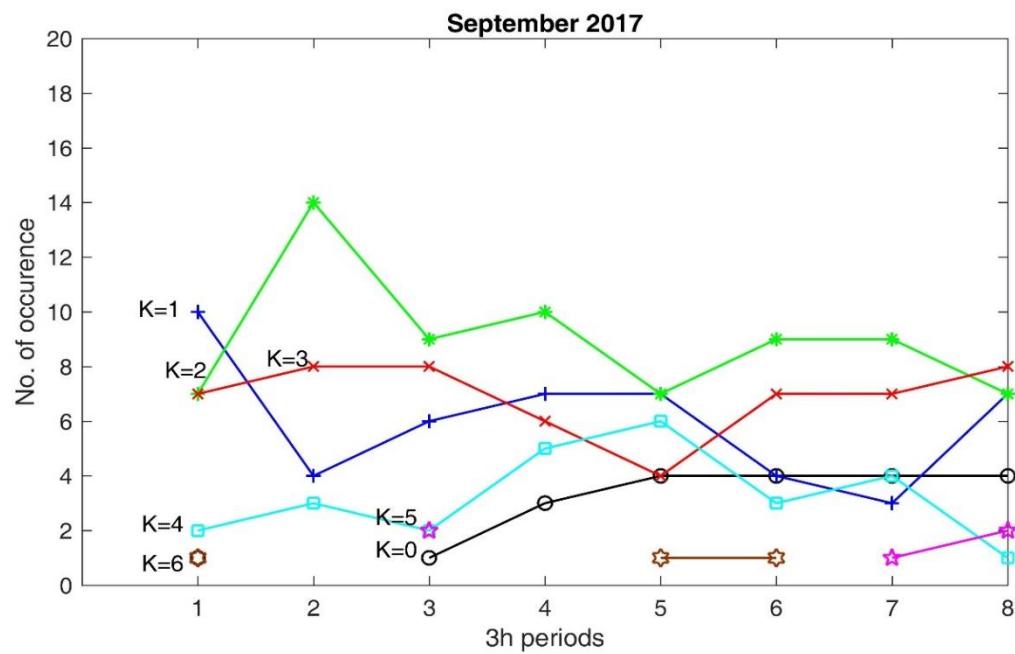
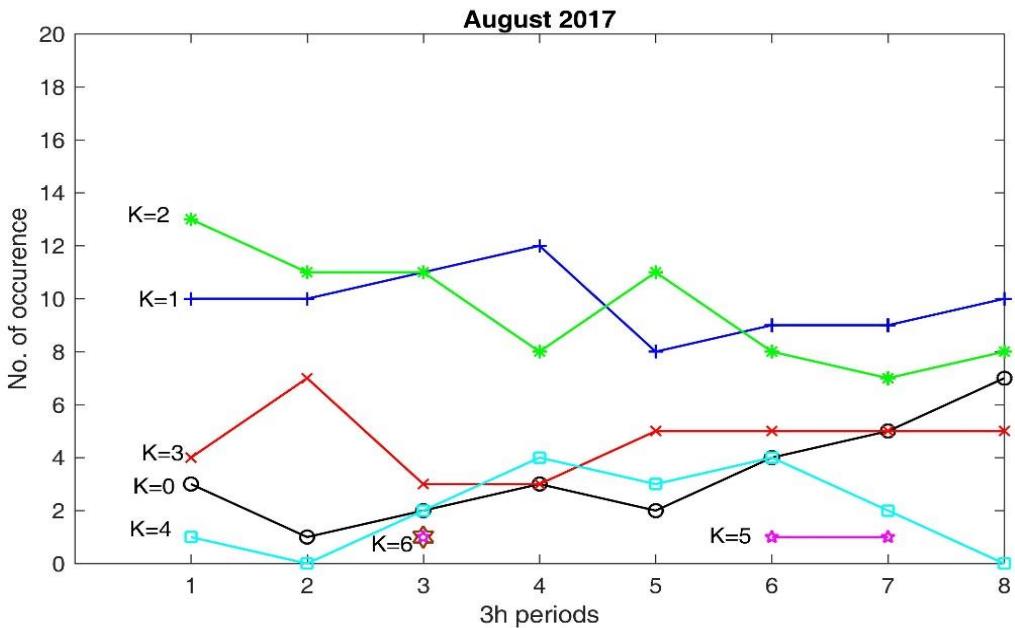
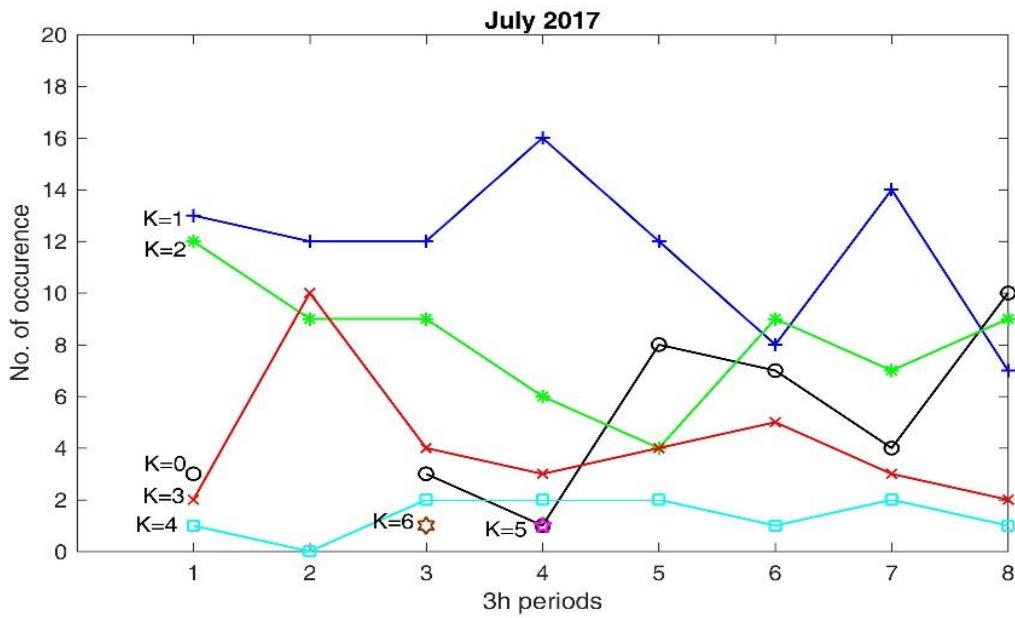
Table 3.10: Rapid magnetic variations data of HYB over 2017

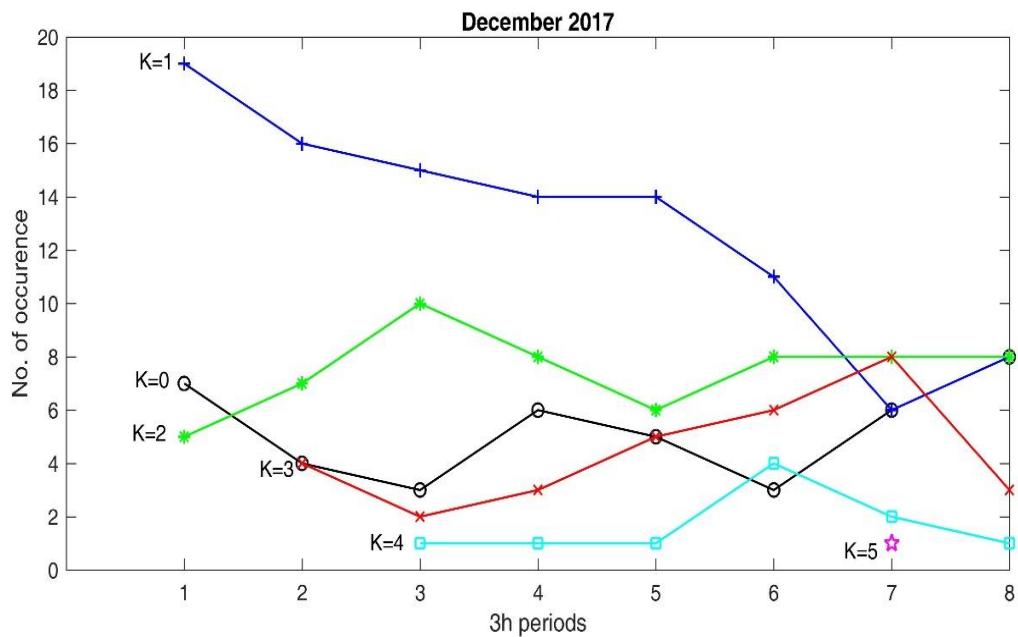
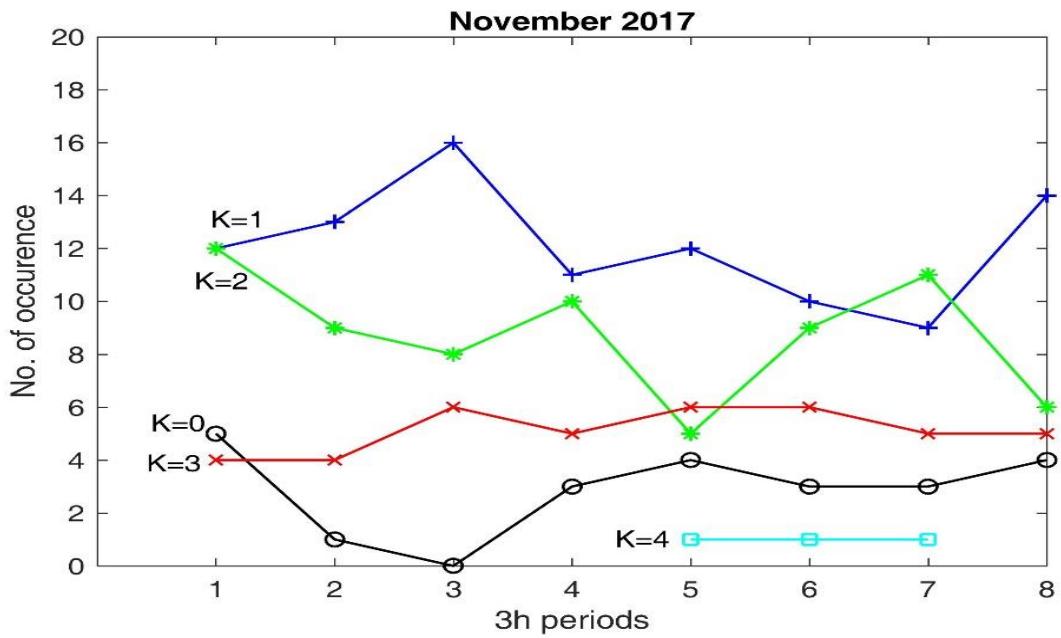
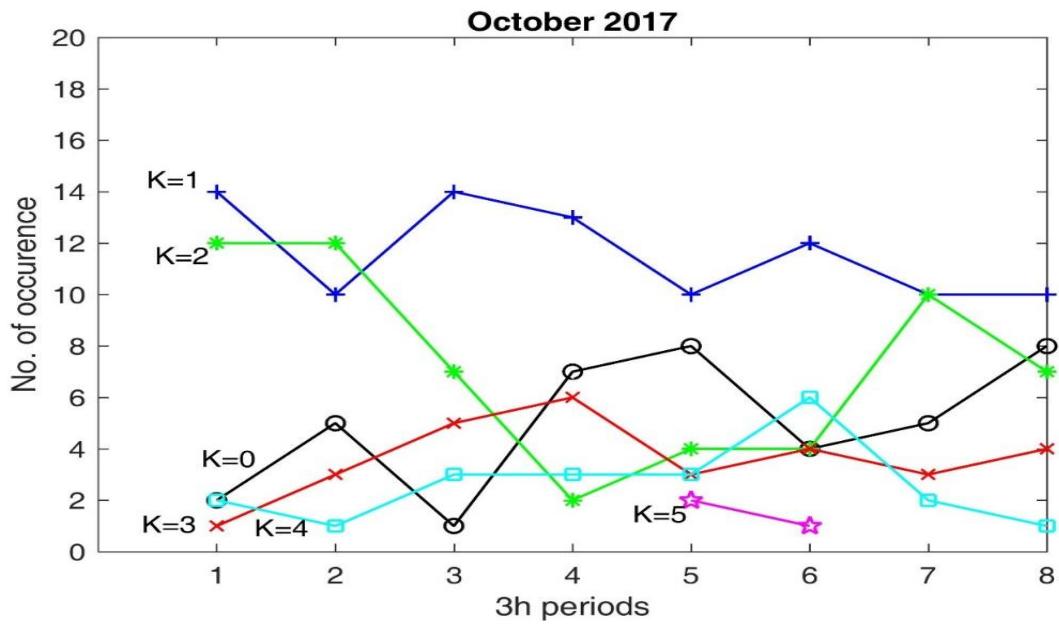
3.11. Monthly K-index frequencies, 2017

The following figures are the plots of monthly sum of K-index values of every month from January to December 2017



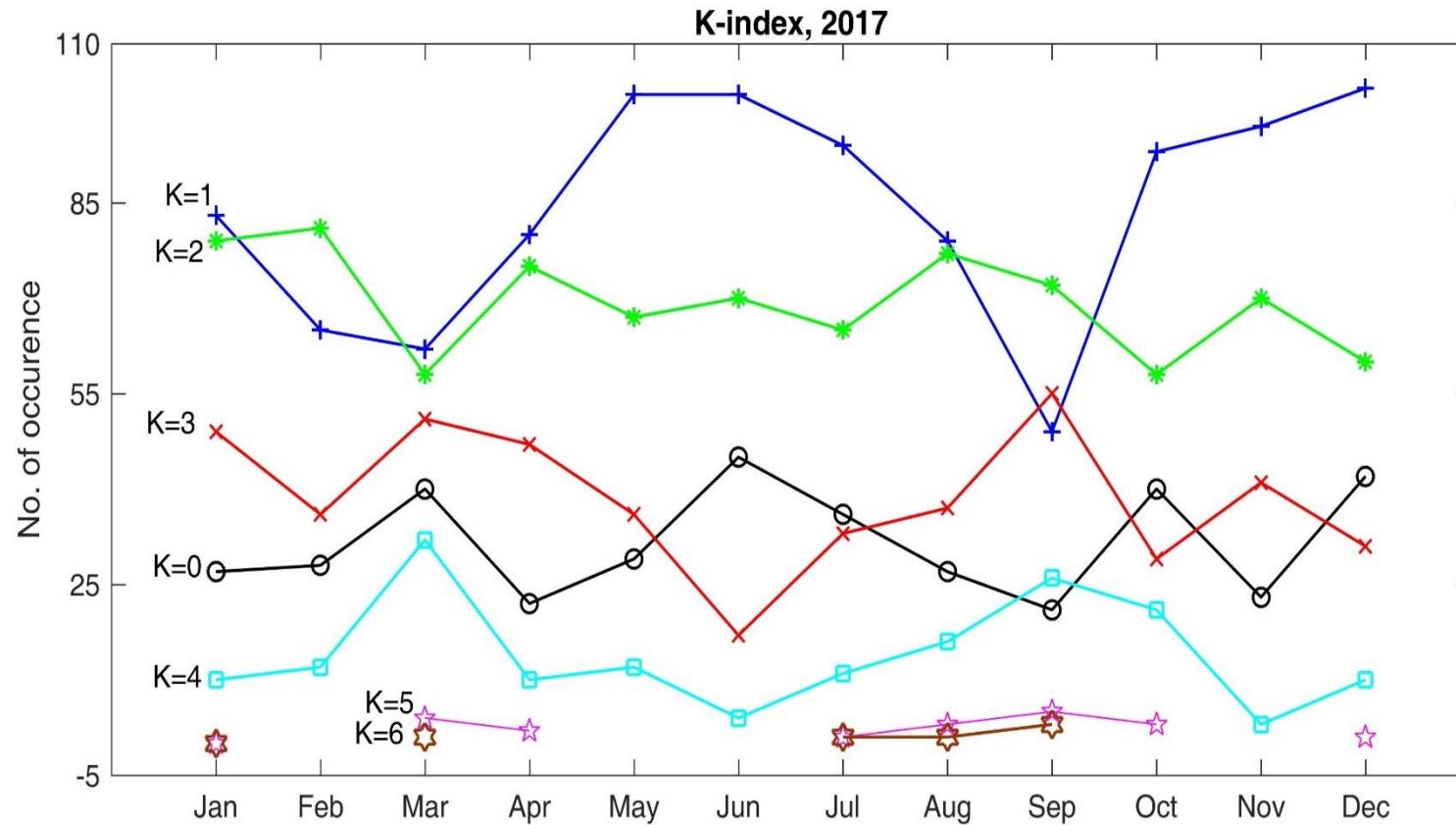






3.12. K-Index frequencies over the year

The following figure is the plot of annual sum of K-index values over the period of year 2017



4. Annual mean values

4.1. Hyderabad Magnetic Observatory from 1965-2017, HYB

Year	D	I	H (nT)	Z (nT)	F (nT)
1965	01° 42.7'	20° 29.1'	40142	14997	42852
1966	01° 40.7'	20° 29.8'	40114	14995	42825
1967	01° 39.0'	20° 30.0'	40081	14986	42791
1968	01° 36.6'	20° 30.0'	40056	14976	42764
1969	01° 34.6'	20° 29.7'	40026	14961	42731
1970	01° 38.6'	20° 29.1'	39989	14939	42688
1971	01° 39.4'	20° 27.7'	39963	14912	42655
1972	01° 36.5'	20° 26.8'	39929	14887	42614
1973	01° 33.6'	20° 27.4'	39900	14883	42585
1974	01° 36.7'	20° 28.7'	39872	14890	42562
1975	01° 38.9'	20° 30.9'	39868	14918	42568
1976	01° 37.7'	20° 34.4'	39846	14956	42560
1977	01° 38.6'	20° 38.2'	39824	14998	42555
1978	01° 38.6'	20° 44.0'	39777	15057	42531
1979	01° 39.2'	20° 49.4'	39746	15117	42524
1980	01° 38.6'	20° 56.2'	39714	15194	42521
1981	01° 38.9'	21° 02.4'	39665	15258	42498
1982	01° 38.1'	21° 10.2'	39613	15341	42480
1983	01° 37.2'	21° 19.3'	39588	15452	42497
1984	01° 30.7'	21° 26.2'	39557	15532	42497
1985	01° 29.2'	21° 32.6'	39529	15606	42498
1986	01° 26.9'	21° 38.4'	39496	15668	42490
1987	01° 25.3'	21° 42.3'	39482	15716	42495
1988	01° 23.1'	21° 44.6'	39454	15735	42476
1989	01° 20.4'	21° 47.0'	39425	15755	42456
1990	01° 18.4'	21° 48.8'	39413	15775	42453
1991	01° 16.9'	21° 49.6'	39403	15781	42446
1992	01° 15.1'	21° 49.2'	39422	15787	42466
1993	01° 13.9'	21° 50.9'	39417	15804	42467
1994	01° 13.4'	21° 52.5'	39412	15824	42470
1995	01° 12.1'	21° 57.0'	39414	15884	42494
1996	01° 10.6'	22° 02.9'	39417	15964	42527
1997	01° 09.3'	22° 08.0'	39421	16034	42557
1998	01° 08.0'	22° 12.8'	39414	16094	42573
1999	01° 07.2'	22° 17.2'	39422	16158	42605
2000	01° 06.3'	22° 21.4'	39428	16216	42632
2001	01° 06.4'	22° 27.1'	39424	16291	42657
2002	01° 05.9'	22° 32.4'	39431	16378	42697
2003	01° 06.4'	22° 37.9'	39478	16460	42772
2004	01° 05.7'	22° 44.1'	39501	16552	42829

Year	D	I	H (nT)	Z (nT)	F (nT)
2005	01° 04.7'	22° 51.3'	39510	16653	42876
2006	01° 03.5'	22° 57.4'	39525	16741	42924
2007	01° 02.0'	23° 05.3'	39526	16848	42967
2008	01° 00.8'	23° 12.5'	39531	16949	43011
2009	01° 00.2'	23° 19.8'	39521	17002	43030
2010	00° 58.5'	23° 32.3'	39527	17149	43075
2011	00° 56.1'	23° 40.5'	39524	17259	43128
2012	00° 52.9'	23° 48.5'	39519	17366	43166
2013	00° 50.1'	23° 54.5'	39514	17452	43196
2014	00° 45.7'	24° 02.7'	39526	17573	43256
2015	00° 43.0'	24° 09.7'	39542	17668	43310
2016	00° 39.3'	24° 18.0'	39539	17793	43358
2017	00° 38.2'	24° 24.6'	39561	17897	43421

4. Summary of observations

Daily Means:

Daily means	H-component	D-component	Z-component	F(Total field)
Maximum & Date	39517.4 on 16.12.2017	39.27 on 04.01.2017	17984.5 on 28.12.2017	43415.7 on 22.12.2017
Minimum & Date	39386.2 on 08.09.2017	37.24 on 08.09.2017	17861.0 on 09.01.2017	43281.8 on 08.09.2017
Difference	131.2	2.03	123.5	133.9

H & F maximum values observed during quite days and H, D & F minimum values observed during geomagnetic active day. But Z maximum and minimum occurred moderately active days.

Absolute Observations:

Over 2017 year we have conducted 155 absolute observations carried out. Out of that 55 observations are considered for the baseline construction for 2017. H baseline changed about 3.5nT, D baseline changed 0.2min and Z baseline changed 0.5 nT over 2017 year.

From 18.04.2017 to 09.05.2017 the scalar magnetometer is recorded at the Secondary Variometer building during absolute observations.

Annual variations:

Throughout the year 2017 the Horizontal field around 25nT increased, Declination it is changed 1.2 minute and Vertical intensity increased 104nT.

Deviations of daily data from monthly mean:

From the above deviation plots it is noticed that the days which are geomagnetic active and quiet like easy to recognise most disturbed, quiet days. Maximum field (nT) positive deviations are observed in the magnetically active days in the Horizontal component and in Declination. It is understood that maximum daily mean is generally observed from quite days. Maximum field negative deviations are observed in magnetically disturbed days. Positive deviation of Vertical component (Z) is gradually

increasing from January to December. When maximum field positive deviation is noticed in H component it is reflected as a Maximum number of high field negative deviations are observed in Z.

K-index frequencies daily, monthly and yearly:

The maximum K daily sum is 37 in the month of September, 8th which is most magnetically disturbed day during 2017.

The next maximum K daily sum is 29 observed again in September 27 & 28.

Minimum K daily sum is 0 in the month of October 30th, the best quietest day in 2017.

From K-index values and its daily sum gives the understanding of variations in the magnetic field. Doing monthly and yearly sum explains the severity/strength of activity taken place monthly and yearly.

During this year it is noticed K=1 occurred maximum in number i.e. 1009 it explains that maximum days are quite days.

This year the maximum K value is 6 it is in months of March, July, August September (3 times).

Rapid Magnetic Variations data:

During 2017, 13 storm sudden commencements are noticed. On 16th July noticed highly disturbed day which shows the sense and amplitude of the chief movements as +75nT in H, +0.38 min in D and -6.4nT in Z.

Secular Variation at HYB:

Regional estimates of secular variations of geomagnetic field components from 1965 -2017 at HYB Magnetic Observatory. Secular change of H-component is gradually decreased from 1965 to 1983 and then very slowly increased till date. The overall decrease in H-component is -581nT. Declination also gradually decreased from 1965 to 2017, overall decrease in D is -64.5 minutes. Coming to Z-component, it is very less (almost static change) decrease noticed from 1965-1970 then gradually increased up to 1980, later very slowly increased up to 1985 then started increasing continuously till date. Overall change in Z-component from 1965 - 2017 is +2900nT.

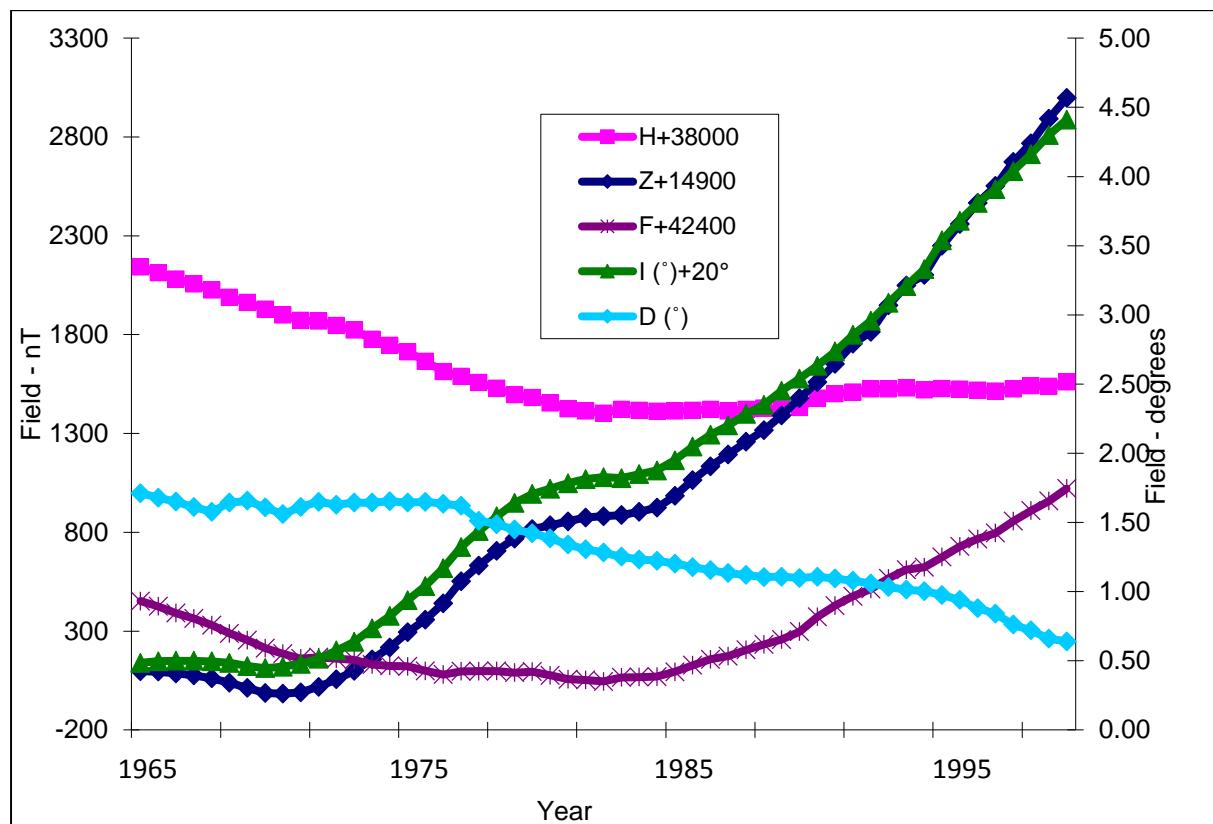
Jump corrections adopted:

Sl. No	Year	H- nT	D-Min	Z- nT
1	1970	+37	+4	+22
2	1993	+22	-4	+19
3	2009	+106	-	-22

1. Absolute values of D as observed with QHM-586 were used for fixing the baselines w.e.f. January 1, 1970, instead QHM587. The change was introduced because comparison against freshly calibrated QHMs received from Copenhagen (Rudeskov) showed that QHM 586 gave the correct value. The values westerly declination at Hyderabad as given by QHM 586 has been found to be 6' higher than those given by QHM-587. Hence the abrupt change in the value of D for 197
2. From January 1, 1993, absolute values of H and Z were being observed at a different site. Hence a correction of +22 nT for H and -4 nT for Z to be applied to annual mean values.
3. From March 1, 2010 onward the absolute measurements were carried out at a different site. The offset was considered in all the measurements during the time period January 1, 2009 - February 28, 2010. So the jump refers to January 1, 2009.

Secular Variation of the Geomagnetic Field Components

1965-2017, HYB



8. Data requests

----- Forwarded Message -----

From: webmaster@intermagnet.org
To: karora@ngri.res.in
Sent: Monday, November 2, 2015 6:32:39 PM
Subject: INTERMAGNET data requests report for HYB

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2015-10-01 UT to 2015-10-31 UT
# Generated at : 2015-11-02 13:01:40
#-----
```

IMO : HYB

```
Requests for IAGA2002 (variation) files      : 134
Requests for IAGA2002 (quasi-definitive) files : 813
Requests for IAGA2002 (provisional) files     : 1
Total                                         : 948
```

```
Requests for minute files                   : 948
Total                                     : 948
```

```
Sampling rate : minute
|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 134
|-- Requested by : imagpots
| |-- IAGA2002 (quasi-definitive) files : 31
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : imagsolov
| |-- IAGA2002 (quasi-definitive) files : 629
|-- Requested by : imagbgs
| |-- IAGA2002 (quasi-definitive) files : 153
```

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2015-10-01 UT to 2015-10-31 UT
# Generated at : 2015-11-02 13:01:42
#-----
```

IMO : HYB

```
Requests for IAGA2002 (quasi-definitive) files : 103
Requests for IAGA2002 (definitive) files       : 21
Requests for IAGA2002 (provisional) files      : 13
Requests for IAGA2002 (variation) files        : 730
Total                                         : 867
```

```
Requests for minute files                   : 867
Total                                     : 867
```

```
Sampling rate : minute
|-- Requested by : zhiging@nssc.ac.cn
| |-- IAGA2002 (quasi-definitive) files : 31
```

```
|-- Requested by : juanrozu@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 61
|-- Requested by : dalex@jupiter.ss.ncu.edu.tw
| |-- IAGA2002 (definitive) files : 21
| |-- IAGA2002 (quasi-definitive) files : 3
|-- Requested by : popperlf@163.com
| |-- IAGA2002 (provisional) files : 10
|-- Requested by : afa05@fayoum.edu.eg
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : ryledup@gmail.com
| |-- IAGA2002 (provisional) files : 3
|-- Requested by : katyushka245@narod.ru
| |-- IAGA2002 (quasi-definitive) files : 2
|-- Requested by : liuxc@cea-igp.ac.cn
| |-- IAGA2002 (variation) files : 730
|-- Requested by : kozyрева@ifz.ru
| |-- IAGA2002 (quasi-definitive) files : 3
|-- Requested by : diana.ionescu@geodin.ro
| |-- IAGA2002 (quasi-definitive) files : 2
```

----- Forwarded Message -----

From: webmaster@intermagnet.org
To: karora@ngri.res.in
Sent: Monday, October 5, 2015 5:05:46 PM
Subject: INTERMAGNET data requests report for HYB

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2015-09-01 UT to 2015-09-30 UT
# Generated at : 2015-10-05 11:34:56
#-----
```

IMO : HYB

Requests for IAGA2002 (variation) files : 33
Total : 33

Requests for minute files : 33
Total : 33

Sampling rate : minute
|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 33

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2015-09-01 UT to 2015-09-30 UT
# Generated at : 2015-10-05 11:34:58
#-----
```

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files : 10
Requests for IAGA2002 (provisional) files : 43
Requests for IAGA2002 (definitive) files : 761
Requests for IAGA2002 (variation) files : 168
Total : 982

Requests for minute files : 982
Total : 982

```

Sampling rate : minute
|-- Requested by : aliaa.afify@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : phaninelapatla@gmail.com
| |-- IAGA2002 (provisional) files : 2
|-- Requested by : nfchao@whu.edu.cn
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : virginia@univap.br
| |-- IAGA2002 (provisional) files : 3
|-- Requested by : liuxc@cea-igp.ac.cn
| |-- IAGA2002 (definitive) files : 730
|-- Requested by : siva14293@gmail.com
| |-- IAGA2002 (variation) files : 168
| |-- IAGA2002 (definitive) files : 31
|-- Requested by : dalex@jupiter.ss.ncu.edu.tw
| |- IAGA2002 (quasi-definitive) files : 7
|-- Requested by : veronicadce@gmail.com
| |-- IAGA2002 (provisional) files : 1
| |-- IAGA2002 (quasi-definitive) files : 2
|-- Requested by : mojaipur@iigs.iigm.res.in
| |-- IAGA2002 (provisional) files : 31
|-- Requested by : yara\_ahmed1792@yahoo.com
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : labelk@163.com
| |-- IAGA2002 (provisional) files : 4

```

From: webmaster@intermagnet.org
To: karora@ngri.res.in
Sent: Thursday, July 2, 2015 4:51:36 PM
Subject: INTERMAGNET data requests report for HYB

```

# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2015-06-01 UT to 2015-06-30 UT
# Generated at : 2015-07-02 11:14:28
#-----

```

IMO : HYB

Requests for IAGA2002 (variation) files	: 58
Requests for IAGA2002 (quasi-definitive) files	: 2
Total	: 60

Requests for minute files	: 60
Total	: 60

Sampling rate : minute

```

|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 58
|-- Requested by : imagbgs
| |-- IAGA2002 (quasi-definitive) files : 2

```

```

# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2015-06-01 UT to 2015-06-30 UT
# Generated at : 2015-07-02 11:14:30
#-----

```

IMO : HYB

Requests for IAGA2002 (provisional) files : 74
Requests for IAGA2002 (quasi-definitive) files : 575
Total : 649

Requests for minute files : 649
Total : 649

Sampling rate : minute

|-- Requested by : phaninelapatla@gmail.com
| |-- IAGA2002 (provisional) files : 5
|-- Requested by : ganglu@ucar.edu
| |-- IAGA2002 (quasi-definitive) files : 14
|-- Requested by : ynicol14@yahoo.com
| |-- IAGA2002 (quasi-definitive) files : 30
| |-- IAGA2002 (provisional) files : 35
|-- Requested by : lfalberca@igs.es
| |-- IAGA2002 (quasi-definitive) files : 4
|-- Requested by : katyushka245@narod.ru
| |-- IAGA2002 (quasi-definitive) files : 484
| |-- IAGA2002 (provisional) files : 26
|-- Requested by : geows@iris.washington.edu
| |-- IAGA2002 (quasi-definitive) files : 3
|-- Requested by : kramerk@nv.doe.gov
| |-- IAGA2002 (quasi-definitive) files : 6
|-- Requested by : aliaa.affify@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 32
| |-- IAGA2002 (provisional) files : 8
|-- Requested by : sheetalkaria1@gmail.com

----- Forwarded Message -----

From: webmaster@intermagnet.org
To: kusumita@ngri.res.in
Sent: Thursday, August 1, 2013 9:06:38 PM
Subject: INTERMAGNET data requests report for HYB

Summary Report for HYB
Files downloaded from Ottawa INTERMAGNET FTP Server
Processed logs from 2013-07-01 UT to 2013-07-31 UT
Generated at : 2013-08-01 15:33:56
#-----

IMO : HYB

Requests for IAGA2002 (variation) files : 27109
Requests for IAGA2002 (quasi-definitive) files : 609
Requests for IAGA2002 (definitive) files : 90
Total : 27808

Requests for minute files : 27808
Total : 27808

Sampling rate : minute

|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 27109
|-- Requested by : imagdtu
| |-- IAGA2002 (quasi-definitive) files : 517
| |-- IAGA2002 (definitive) files : 90
|-- Requested by : imagbgs
| |-- IAGA2002 (quasi-definitive) files : 92

Summary Report for HYB

```
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2013-07-01 UT to 2013-07-31 UT
# Generated at : 2013-08-01 15:33:58
#-----
```

IMO : HYB

```
Requests for IAGA2002 (variation) files      : 377
Requests for IAGA2002 (definitive) files     : 365
Total                           : 742
```

```
Requests for minute files       : 742
Total                           : 742
```

Sampling rate : minute

```
|-- Requested by : ganglu@ucar.edu
| |-- IAGA2002 (variation) files : 11
|-- Requested by : kumbhersalam@yahoo.com
| |-- IAGA2002 (definitive) files : 365
|-- Requested by : raj\_h60@rediffmail.com
| |-- IAGA2002 (variation) files : 366
```

----- Forwarded message -----

From: <webmaster@intermagnet.org>
Date: Tue, Dec 1, 2015 at 8:41 PM
Subject: INTERMAGNET data requests report for HYB
To: kusumita.arora@gmail.com

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2015-11-01 UT to 2015-11-30 UT
# Generated at : 2015-12-01 15:11:29
#-----
```

IMO : HYB

```
Requests for IAGA2002 (variation) files      : 52
Requests for IAGA2002 (quasi-definitive) files : 63
Requests for IAGA2002 (provisional) files     : 3
Requests for IAGA2002 (definitive) files       : 578
Total                           : 696
```

```
Requests for minute files       : 696
Total                           : 696
```

Sampling rate : minute

```
|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 52
|-- Requested by : imgbgs
| |-- IAGA2002 (quasi-definitive) files : 63
| |-- IAGA2002 (provisional) files : 3
|-- Requested by : imgsolv
| |-- IAGA2002 (definitive) files : 578
```

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2015-11-02 UT to 2015-11-30 UT
# Generated at : 2015-12-01 15:11:32
#-----
```

IMO : HYB

```
Requests for IAGA2002 (quasi-definitive) files : 1747
Requests for IAGA2002 (definitive) files : 3302
Requests for IAGA2002 (provisional) files : 4
Total : 5053
```

```
Requests for minute files : 5053
Total : 5053
```

Sampling rate : minute

```
|-- Requested by : kozyreva@ifz.ru
| |-- IAGA2002 (quasi-definitive) files : 10
| |-- IAGA2002 (definitive) files : 15
|-- Requested by : dwelling@umich.edu
| |- IAGA2002 (quasi-definitive) files : 4
|-- Requested by : lfalberca@igs.es
| |- IAGA2002 (quasi-definitive) files : 21
|-- Requested by : shamilalakmal@gmail.com
| |- IAGA2002 (definitive) files : 1461
|-- Requested by : Baba4onok@bigmir.net
| |- IAGA2002 (definitive) files : 1826
| |- IAGA2002 (quasi-definitive) files : 1366
|-- Requested by : ryabovasa@mail.ru
| |- IAGA2002 (quasi-definitive) files : 2
|-- Requested by : phaninelapatla@gmail.com
| |- IAGA2002 (provisional) files : 2
|-- Requested by : dmitri\_epishkin@mail.ru
| |- IAGA2002 (provisional) files : 1
| |- IAGA2002 (quasi-definitive) files : 46
|-- Requested by : katyushka245@narod.ru
| |- IAGA2002 (quasi-definitive) files : 296
|-- Requested by : mahenderastro@gmail.com
| |- IAGA2002 (provisional) files : 1
|-- Requested by : ryabovasva@mail.ru
| |- IAGA2002 (quasi-definitive) files : 2
```

----- Forwarded message -----

From: <webmaster@intermagnet.org>
Date: Fri, Apr 1, 2016 at 6:23 PM
Subject: INTERMAGNET data requests report for HYB
To: kusumita.arora@gmail.com

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2016-03-01 UT to 2016-03-31 UT
# Generated at : 2016-04-01 12:52:59
#-----
```

IMO : HYB

```
Requests for IAGA2002 (provisional) files : 785
Requests for IAGA2002 (quasi-definitive) files : 619
Requests for IAGA2002 (definitive) files : 731
Requests for IAGA2002 (variation) files : 538
Total : 2673
```

```
Requests for minute files : 2673
Total : 2673
```

Sampling rate : minute

```
|-- Requested by : imaginpe
```

```
| |-- IAGA2002 (provisional) files : 70
|-- Requested by : imagbgs
| |-- IAGA2002 (quasi-definitive) files : 529
| |-- IAGA2002 (provisional) files : 580
|-- Requested by : imagpots
| |-- IAGA2002 (quasi-definitive) files : 90
| |-- IAGA2002 (provisional) files : 135
| |-- IAGA2002 (definitive) files : 731
|-- Requested by : imagrong
| |-- IAGA2002 (variation) files : 522
|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 16
```

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2016-03-01 UT to 2016-03-31 UT
# Generated at : 2016-04-01 12:53:03
#-----
```

IMO : HYB

```
Requests for IAGA2002 (quasi-definitive) files : 1321
Requests for IAGA2002 (provisional) files : 68
Requests for IAGA2002 (definitive) files : 1846
Requests for IAGA2002 (variation) files : 4
Total : 3239
```

```
Requests for minute files : 3239
Total : 3239
```

Sampling rate : minute

```
-- Requested by : zsheng93@foxmail.com
| |-- IAGA2002 (quasi-definitive) files : 33
-- Requested by : lakshmiramprasath@gmail.com
| |-- IAGA2002 (provisional) files : 4
-- Requested by : lrp34006@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 4
| |-- IAGA2002 (provisional) files : 2
-- Requested by : talk2ocleen@yahoo.com
| |-- IAGA2002 (definitive) files : 13
-- Requested by : sanaz.nourbakhsh.1@outlook.com
| |-- IAGA2002 (provisional) files : 2
-- Requested by : sanaz.nourbakhsh@outlook.com
| |-- IAGA2002 (provisional) files : 1
-- Requested by : andrei11vorobev@gmail.com
| |-- IAGA2002 (variation) files : 4
| |-- IAGA2002 (quasi-definitive) files : 10
| |-- IAGA2002 (definitive) files : 3
-- Requested by : kcsrao18ngri@gmail.com
| |-- IAGA2002 (provisional) files : 1
-- Requested by : champion_chb@126.com
| |-- IAGA2002 (definitive) files : 365
| |-- IAGA2002 (quasi-definitive) files : 182
-- Requested by : jovenho@163.com
| |-- IAGA2002 (definitive) files : 1095
-- Requested by : 879144166@qq.com
| |-- IAGA2002 (quasi-definitive) files : 1026
-- Requested by : danielshamambo@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 16
| |-- IAGA2002 (provisional) files : 2
-- Requested by : tharani012@gmail.com
```

```
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : mehrdad.moradi7070@gmail.com
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : jjcurto@obsebre.es
| |-- IAGA2002 (definitive) files : 1
|-- Requested by : sumeshgopinath@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 6
|-- Requested by : 307013584@qq.com
| |-- IAGA2002 (definitive) files : 3
|-- Requested by : songchk@126.com
| |-- IAGA2002 (definitive) files : 366
| |-- IAGA2002 (quasi-definitive) files : 31
| |-- IAGA2002 (provisional) files : 54
|-- Requested by : zolot@iszf.irk.ru
| |-- IAGA2002 (quasi-definitive) files : 13
```

----- Forwarded message -----

From: <webmaster@intermagnet.org>
Date: Mon, May 2, 2016 at 8:01 PM
Subject: INTERMAGNET data requests report for HYB
To: kusumita.arora@gmail.com

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2016-04-01 UT to 2016-04-30 UT
# Generated at : 2016-05-02 14:31:18
#-----
```

IMO : HYB

```
Requests for IAGA2002 (provisional) files      : 56
Requests for IAGA2002 (quasi-definitive) files  : 417
Requests for IAGA2002 (variation) files        : 733
Total                                         : 1206
```

```
Requests for minute files          : 1206
Total                           : 1206
```

Sampling rate : minute

```
|-- Requested by : imagbgs
| |-- IAGA2002 (provisional) files : 2
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : imagrong
| |-- IAGA2002 (variation) files : 733
|-- Requested by : imaginpe
| |-- IAGA2002 (provisional) files : 54
|-- Requested by : imagpots
| |-- IAGA2002 (quasi-definitive) files : 416
```

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2016-04-01 UT to 2016-04-30 UT
# Generated at : 2016-05-02 14:31:19
#-----
```

IMO : HYB

```
Requests for IAGA2002 (provisional) files      : 77
Requests for IAGA2002 (quasi-definitive) files  : 44
Requests for IAGA2002 (definitive) files        : 733
```

Total : 854
Requests for minute files : 854
Total : 854

Sampling rate : minute
|-- Requested by : eslam.hamza.1000@facebook.com
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : yx8425061@163.com
| |-- IAGA2002 (provisional) files : 9
|-- Requested by : zsheng93@foxmail.com
| |-- IAGA2002 (quasi-definitive) files : 6
|-- Requested by : isahiom@hotmail.com
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : india.ajesh@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 31
| |-- IAGA2002 (provisional) files : 66
|-- Requested by : brett.carter@rmit.edu.au
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : coisson@ipgp.fr
| |-- IAGA2002 (quasi-definitive) files : 3
|-- Requested by : kcsrao18ngri@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 2
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : lilianola@yahoo.com
| |-- IAGA2002 (definitive) files : 731
|-- Requested by : dfreez@ya.ru
| |-- IAGA2002 (definitive) files : 2

From: webmaster@intermagnet.org
To: karora@ngri.res.in
Sent: Wednesday, June 1, 2016 5:48:32 PM
Subject: INTERMAGNET data requests report for HYB

Summary Report for HYB
Files downloaded from Ottawa INTERMAGNET FTP Server
Processed logs from 2016-05-01 UT to 2016-05-31 UT
Generated at : 2016-06-01 12:18:08
#-----

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files : 93
Requests for IAGA2002 (variation) files : 516
Total : 609

Requests for minute files : 609
Total : 609

Sampling rate : minute
|-- Requested by : imagalca
| |-- IAGA2002 (quasi-definitive) files : 93
|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 28
|-- Requested by : imagrong
| |-- IAGA2002 (variation) files : 320
|-- Requested by : imagrsi
| |-- IAGA2002 (variation) files : 168

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2016-05-01 UT to 2016-05-31 UT
# Generated at : 2016-06-01 12:18:09
#-----
```

IMO : HYB

```
Requests for IAGA2002 (provisional) files      : 1
Requests for IAGA2002 (definitive) files       : 382
Requests for IAGA2002 (quasi-definitive) files : 96
Requests for IAGA2002 (variation) files        : 365
Total                                         : 844
```

```
Requests for minute files                      : 844
Total                                         : 844
```

Sampling rate : minute

```
|-- Requested by : lfalberca@iqs.es
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : martina.guzavina@erdw.ethz.ch
| |-- IAGA2002 (definitive) files : 2
|-- Requested by : sunlingfeng@mail.igcas.ac.cn
| |-- IAGA2002 (quasi-definitive) files : 10
| |-- IAGA2002 (definitive) files : 14
|-- Requested by : z4rf@yahoo.com
| |-- IAGA2002 (definitive) files : 365
|-- Requested by : 745043732@qq.com
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : hendra.31294@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 20
|-- Requested by : 1819019267@qq.com
| |-- IAGA2002 (quasi-definitive) files : 2
|-- Requested by : orel4985@mail.ru
| |-- IAGA2002 (variation) files : 365
|-- Requested by : archana2208772@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 58
|-- Requested by : ecla@bgs.ac.uk
| |-- IAGA2002 (quasi-definitive) files : 3
|-- Requested by : coisson@ipgp.fr
| |-- IAGA2002 (quasi-definitive) files : 2
|-- Requested by : drfreez@ya.ru
| |-- IAGA2002 (definitive) files : 1
```

----- Forwarded Message -----

From: webmaster@intermagnet.org
To: karora@ngri.res.in
Sent: Wednesday, June 1, 2016 5:48:32 PM
Subject: INTERMAGNET data requests report for HYB

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2016-05-01 UT to 2016-05-31 UT
# Generated at : 2016-06-01 12:18:08
#-----
```

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files : 93
Requests for IAGA2002 (variation) files : 516
Total : 609

Requests for minute files : 609
Total : 609

Sampling rate : minute
|-- Requested by : imagalca
| |-- IAGA2002 (quasi-definitive) files : 93
|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 28
|-- Requested by : imagrong
| |-- IAGA2002 (variation) files : 320
|-- Requested by : imagrsi
| |-- IAGA2002 (variation) files : 168

Summary Report for HYB
Files downloaded from Ottawa INTERMAGNET Web Server
Processed logs from 2016-05-01 UT to 2016-05-31 UT
Generated at : 2016-06-01 12:18:09
#-----

IMO : HYB

Requests for IAGA2002 (provisional) files : 1
Requests for IAGA2002 (definitive) files : 382
Requests for IAGA2002 (quasi-definitive) files : 96
Requests for IAGA2002 (variation) files : 365
Total : 844

Requests for minute files : 844
Total : 844

Sampling rate : minute
|-- Requested by : lfalberca@iqs.es
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : martina.guzavina@erdw.ethz.ch
| |-- IAGA2002 (definitive) files : 2
|-- Requested by : sunlingfeng@mail.igcas.ac.cn
| |-- IAGA2002 (quasi-definitive) files : 10
| |-- IAGA2002 (definitive) files : 14
|-- Requested by : z4rf@yahoo.com
| |-- IAGA2002 (definitive) files : 365
|-- Requested by : 745043732@qq.com
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : hendra.31294@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 20
|-- Requested by : 1819019267@qq.com
| |-- IAGA2002 (quasi-definitive) files : 2
|-- Requested by : orel4985@mail.ru
| |-- IAGA2002 (variation) files : 365
|-- Requested by : archana2208772@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 58

```
|-- Requested by : ecla@bgs.ac.uk
| |-- IAGA2002 (quasi-definitive) files : 3
|-- Requested by : coisson@ipgp.fr
| |-- IAGA2002 (quasi-definitive) files : 2
|-- Requested by : dfreez@ya.ru
| |-- IAGA2002 (definitive) files : 1
```

From: webmaster@intermagnet.org
Date: 2 August 2016 at 5:07:24 PM IST
To: kusumita.arora@gmail.com
Subject: INTERMAGNET data requests report for HYB
Reply-To: webmaster@intermagnet.org

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2016-07-01 UT to 2016-07-31 UT
# Generated at : 2016-08-02 11:35:35
#-----
```

IMO : HYB

Requests for IAGA2002 (variation) files	: 20
Total	: 20
Requests for minute files	: 20
Total	: 20

Sampling rate : minute
|-- Requested by : imagusgs
| |-- IAGA2002 (variation) files : 20

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2016-07-01 UT to 2016-07-21 UT
# Generated at : 2016-08-02 11:35:37
#-----
```

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files	: 360
Requests for IAGA2002 (provisional) files	: 12
Requests for IAGA2002 (definitive) files	: 3
Total	: 375

Requests for minute files	: 375
Total	: 375

Sampling rate : minute
|-- Requested by : india.ajesh@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 12
|-- Requested by : enh@teknova.no
| |-- IAGA2002 (quasi-definitive) files : 284
|-- Requested by : archana2208772@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 24
|-- Requested by : zolot@iszf.irk.ru
| |-- IAGA2002 (quasi-definitive) files : 36
| |-- IAGA2002 (provisional) files : 12

```
|-- Requested by : martina.guzavina@erdw.ethz.ch
| |-- IAGA2002 (definitive) files : 3
|-- Requested by : bulusujayashree@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 4
```

Begin forwarded message:

From: webmaster@intermagnet.org
Date: 12 September 2016 at 3:31:23 PM IST
To: kusumita.arora@gmail.com
Subject: INTERMAGNET data requests report for HYB
Reply-To: webmaster@intermagnet.org

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2016-08-01 UT to 2016-08-31 UT
# Generated at : 2016-09-12 10:01:02
#-----
```

IMO : HYB

```
Requests for IAGA2002 (quasi-definitive) files : 363
Requests for IAGA2002 (provisional) files : 30
Total : 393
```

```
Requests for minute files : 393
Total : 393
```

Sampling rate : minute

```
|-- Requested by : imagpots
| |-- IAGA2002 (quasi-definitive) files : 238
| |-- IAGA2002 (provisional) files : 30
|-- Requested by : imagbgs
| |-- IAGA2002 (quasi-definitive) files : 125
```

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2016-08-01 UT to 2016-08-31 UT
# Generated at : 2016-09-12 10:01:03
#-----
```

IMO : HYB

```
Requests for IAGA2002 (quasi-definitive) files : 73
Requests for IAGA2002 (definitive) files : 1
Total : 74
```

```
Requests for minute files : 74
Total : 74
```

Sampling rate : minute

```
|-- Requested by : phaninelapatla@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 32
|-- Requested by : piersantimirko28@hotmail.com
| |-- IAGA2002 (quasi-definitive) files : 2
```

```
|-- Requested by : olgsokolova@yandex.ru
| |-- IAGA2002 (quasi-definitive) files : 30
|-- Requested by : vazhakka2000@yahoo.com
| |-- IAGA2002 (definitive) files : 1
|-- Requested by : bulusujayashree@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 9
```

---- Forwarded Message -----

From: webmaster@intermagnet.org
To: karora@ngri.res.in
Sent: Monday, October 3, 2016 4:59:40 PM
Subject: INTERMAGNET data requests report for HYB

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2016-09-01 UT to 2016-09-30 UT
# Generated at : 2016-10-03 11:29:18
#-----
```

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files	:	1622
Requests for IAGA2002 (definitive) files	:	1476
Requests for IAGA2002 (provisional) files	:	12
Total	:	3110

Requests for minute files	:	3110
Total	:	3110

Sampling rate : minute

```
|-- Requested by : heba.salah@aucegypt.edu
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : mohamad.elmasry2050@yahoo.com
| |-- IAGA2002 (definitive) files : 1
|-- Requested by : Khomutov@ikir.ru
| |-- IAGA2002 (quasi-definitive) files : 6
| |-- IAGA2002 (provisional) files : 12
| |-- IAGA2002 (definitive) files : 10
|-- Requested by : zhaoxud@mail.igcas.ac.cn
| |-- IAGA2002 (quasi-definitive) files : 35
|-- Requested by : 745043732@qq.com
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : 745043732@qq.com
| |-- IAGA2002 (quasi-definitive) files : 19
|-- Requested by : martina.guzavina@erdw.ethz.ch
| |-- IAGA2002 (quasi-definitive) files : 9
|-- Requested by : khairulafifi@yahoo.com
| |-- IAGA2002 (quasi-definitive) files : 1208
| |-- IAGA2002 (definitive) files : 1461
|-- Requested by : manjulalingala@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 43
|-- Requested by : shyamoli@iigs.iigm.res.in
| |-- IAGA2002 (definitive) files : 2
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : aniliype@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 294
|-- Requested by : yara\_ahmed1792@yahoo.com
| |-- IAGA2002 (definitive) files : 2
```

```
|-- Requested by : xinzhang@163.com
| |-- IAGA2002 (quasi-definitive) files : 4
|-- Requested by : ljadhav@iigs.iigm.res.in
| |-- IAGA2002 (quasi-definitive) files : 1
```

----- Forwarded message -----

From: <webmaster@intermagnet.org>
Date: Tue, Nov 1, 2016 at 4:49 PM
Subject: INTERMAGNET data requests report for HYB
To: kusumita.arora@gmail.com

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2016-10-01 UT to 2016-10-31 UT
# Generated at : 2016-11-01 11:09:24
#-----
```

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files : 29
Requests for IAGA2002 (provisional) files : 31
Total : 60

Requests for minute files : 60
Total : 60

Sampling rate : minute

```
|-- Requested by : imagsolov
| |-- IAGA2002 (quasi-definitive) files : 29
|-- Requested by : imagalca
| |-- IAGA2002 (provisional) files : 31
```

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2016-10-01 UT to 2016-10-31 UT
# Generated at : 2016-11-01 11:09:26
#-----
```

IMO : HYB

Requests for IAGA2002 (definitive) files : 44
Requests for IAGA2002 (quasi-definitive) files : 182
Requests for IAGA2002 (provisional) files : 1
Total : 227

Requests for minute files : 227
Total : 227

Sampling rate : minute

```
|-- Requested by : manjulalingala@gmail.com
| |-- IAGA2002 (definitive) files : 6
|-- Requested by : ljalberca@iqs.es
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : tikuwabuu.odensan@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 7
|-- Requested by : 616334105@qq.com
```

```
| |-- IAGA2002 (definitive) files : 26
|-- Requested by : 745043732@qq.com
| |-- IAGA2002 (definitive) files : 12
| |-- IAGA2002 (quasi-definitive) files : 8
|-- Requested by : pkm@tifr.res.in
| |-- IAGA2002 (quasi-definitive) files : 6
|-- Requested by : anusha.geotech@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 153
|-- Requested by : andrei11vorobev@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 1
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : 1819019267@qq.com
| |-- IAGA2002 (quasi-definitive) files : 5
|-- Requested by : apatenkov@mail.ru
| |-- IAGA2002 (quasi-definitive) files : 1
```

----- Forwarded message -----

From: <webmaster@intermagnet.org>
Date: Mon, Dec 5, 2016 at 6:41 PM
Subject: INTERMAGNET data requests report for HYB
To: kusumita.arora@gmail.com

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2016-11-01 UT to 2016-11-30 UT
# Generated at : 2016-12-05 13:09:55
#-----
```

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files	:	1357
Requests for IAGA2002 (definitive) files	:	1884
Total	:	3241

Requests for minute files	:	3241
Total	:	3241

Sampling rate : minute

```
|-- Requested by : 111111111111@qwer.om
| |-- IAGA2002 (quasi-definitive) files : 31
|-- Requested by : 745043732@qq.com
| |-- IAGA2002 (quasi-definitive) files : 16
|-- Requested by : martina.guzavina@erdw.ethz.ch
| |-- IAGA2002 (definitive) files : 6
|-- Requested by : do.faroog@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 457
|-- Requested by : yanxiangxiang@upc.edu.cn
| |-- IAGA2002 (definitive) files : 1
|-- Requested by : ivankutiev@yahoo.com
| |-- IAGA2002 (definitive) files : 5
|-- Requested by : rosbell\_love.22@hotmail.com
| |-- IAGA2002 (quasi-definitive) files : 31
|-- Requested by : anusha.geotech@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 546
| |-- IAGA2002 (definitive) files : 1
|-- Requested by : johnpappachen@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 164
|-- Requested by : 5252yq@163.com
```

```
| |-- IAGA2002 (definitive) files : 24
|-- Requested by : shahryarnadr@yahoo.com
| |-- IAGA2002 (quasi-definitive) files : 90
|-- Requested by : wangxiang.whu@whu.edu.cn
| |-- IAGA2002 (definitive) files : 19
| |-- IAGA2002 (quasi-definitive) files : 16
|-- Requested by : zolot@iszf.irk.ru
| |-- IAGA2002 (quasi-definitive) files : 6
|-- Requested by : phaninelapatla@gmail.com
| |-- IAGA2002 (definitive) files : 1828
```

----- Forwarded message -----

From: <webmaster@intermagnet.org>
Date: Wed, Feb 1, 2017 at 6:14 PM
Subject: INTERMAGNET data requests report for HYB
To: kusumita.arora@gmail.com

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2017-01-01 UT to 2017-01-31 UT
# Generated at : 2017-02-01 12:43:32
#-----
```

IMO : HYB

Requests for IAGA2002 (provisional) files : 761
Total : 761

Requests for minute files : 761
Total : 761

Sampling rate : minute

```
|-- Requested by : imaggenkawa
| |-- IAGA2002 (provisional) files : 749
|-- Requested by : imagpots
| |-- IAGA2002 (provisional) files : 12
```

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2017-01-01 UT to 2017-01-31 UT
# Generated at : 2017-02-01 12:43:33
#-----
```

IMO : HYB

Requests for IAGA2002 (definitive) files : 8
Requests for IAGA2002 (quasi-definitive) files : 570
Requests for IAGA2002 (provisional) files : 13
Total : 591

Requests for minute files : 591
Total : 591

Sampling rate : minute

```
|-- Requested by : st3ymurata@mc-jma.go.jp
| |- IAGA2002 (definitive) files : 5
```

```
|-- Requested by : saburov_timur@mail.ru
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : drfreez@ya.ru
| |-- IAGA2002 (definitive) files : 1
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : do.farooq@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 365
|-- Requested by : pz.optical@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 3
|-- Requested by : kishorerayudu@gmail.com
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : Khomutov@ikir.ru
| |-- IAGA2002 (quasi-definitive) files : 6
|-- Requested by : Mary.tur@inbox.ru
| |-- IAGA2002 (definitive) files : 2
|-- Requested by : india.ajesh@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 91
| |-- IAGA2002 (provisional) files : 6
|-- Requested by : antti.a.pulkkinen@nasa.gov
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : apatenkov@geo.phys.spbu.ru
| |-- IAGA2002 (quasi-definitive) files : 11
|-- Requested by : ender787@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 91
| |-- IAGA2002 (provisional) files : 6
```

----- Forwarded Message -----

From: webmaster@intermagnet.org
To: karora@ngri.res.in
Sent: Wednesday, March 1, 2017 8:51:21 PM
Subject: INTERMAGNET data requests report for HYB

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2017-02-01 UT to 2017-02-28 UT
# Generated at : 2017-03-01 15:21:05
#-----
```

IMO : HYB

Requests for IAGA2002 (provisional) files	: 1062
Requests for IAGA2002 (quasi-definitive) files	: 185
Total	: 1247

Requests for minute files	: 1247
Total	: 1247

Sampling rate : minute
|-- Requested by : imaggenkawa
| |-- IAGA2002 (provisional) files : 1062
|-- Requested by : imagbgs
| |-- IAGA2002 (quasi-definitive) files : 185

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2017-02-01 UT to 2017-02-28 UT
```

Generated at : 2017-03-01 15:21:06

#-----

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files : 37

Requests for IAGA2002 (provisional) files : 5

Requests for IAGA2002 (definitive) files : 1

Total : 43

Requests for minute files : 43

Total : 43

Sampling rate : minute

|-- Requested by : drfreez@ya.ru

| |-- IAGA2002 (quasi-definitive) files : 6

|-- Requested by : jishnu.gsi@gmail.com

| |-- IAGA2002 (provisional) files : 1

|-- Requested by : mary.tur@inbox.ru

| |-- IAGA2002 (quasi-definitive) files : 13

|-- Requested by : do.farooq@gmail.com

| |-- IAGA2002 (quasi-definitive) files : 2

|-- Requested by : thibaud.hazebrouck@sfr.fr

| |-- IAGA2002 (provisional) files : 3

|-- Requested by : took.burmistrov@gmail.com

| |-- IAGA2002 (provisional) files : 1

|-- Requested by : jobe5358@colorado.edu

| |-- IAGA2002 (definitive) files : 1

|-- Requested by : 1539852463@qq.com

| |-- IAGA2002 (quasi-definitive) files : 2

|-- Requested by : lucia.santarelli@ingv.it

| |-- IAGA2002 (quasi-definitive) files : 13

|-- Requested by : vpetrov@izmiran.ru

| |-- IAGA2002 (quasi-definitive) files : 1

----- Forwarded message -----

From: <webmaster@intermagnet.org>

Date: Mon, May 1, 2017 at 11:10 PM

Subject: INTERMAGNET data requests report for HYB

To: kusumita.arora@gmail.com

Summary Report for HYB

Files downloaded from Ottawa INTERMAGNET FTP Server

Processed logs from 2017-04-01 UT to 2017-04-30 UT

Generated at : 2017-05-01 14:57:16

#-----

IMO : HYB

Requests for IAGA2002 (provisional) files : 717

Requests for IAGA2002 (quasi-definitive) files : 456

Total : 1173

Requests for minute files : 1173

Total : 1173

Sampling rate : minute

```
|-- Requested by : imagbgs
| |-- IAGA2002 (provisional) files : 66
| |-- IAGA2002 (quasi-definitive) files : 456
|-- Requested by : imaggenkawa
| |-- IAGA2002 (provisional) files : 651
```

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2017-04-01 UT to 2017-04-30 UT
# Generated at : 2017-05-01 14:58:01
#-----
```

IMO : HYB

```
Requests for IAGA2002 (provisional) files      : 30
Requests for IAGA2002 (quasi-definitive) files   : 822
Requests for IAGA2002 (variation) files         : 1422
Requests for IAGA2002 (definitive) files        : 2009
Total                                         : 4283
```

```
Requests for minute files                  : 4283
Total                                     : 4283
```

Sampling rate : minute

```
|-- Requested by : 968754321@qq.com
| |-- IAGA2002 (provisional) files : 3
| |-- IAGA2002 (quasi-definitive) files : 2
| |-- IAGA2002 (variation) files : 760
| |-- IAGA2002 (definitive) files : 1470
|-- Requested by : thibaud.hazebrouck@sfr.fr
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : gastcrazy@gmail.com
| |-- IAGA2002 (definitive) files : 126
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : anusha.geotech@gmail.com
| |-- IAGA2002 (variation) files : 660
| |-- IAGA2002 (definitive) files : 366
| |-- IAGA2002 (quasi-definitive) files : 456
| |-- IAGA2002 (provisional) files : 6
|-- Requested by : 842331722@qq.com
| |-- IAGA2002 (definitive) files : 4
| |-- IAGA2002 (provisional) files : 9
| |-- IAGA2002 (variation) files : 2
|-- Requested by : martinc@athabascau.ca
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : mengmax@foxmail.com
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : india.ajesh@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 361
| |-- IAGA2002 (provisional) files : 6
|-- Requested by : Mary.tur@inbox.ru
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : lunkylaxman@gmail.com
| |-- IAGA2002 (provisional) files : 1
|-- Requested by : tkoyama@eri.u-tokyo.ac.jp
| |-- IAGA2002 (definitive) files : 12
|-- Requested by : ajaydev35@gmail.com
```

```
| |-- IAGA2002 (provisional) files : 3
|-- Requested by : liuxc@cea-igp.ac.cn
| |-- IAGA2002 (definitive) files : 31
```

----- Original Message -----

From: NRCAN.geomag-webmaster-geomag-webmaster.RNCan@canada.ca
Date: Jul 4, 2017 5:12:07 PM
Subject: INTERMAGNET data requests report for HYB
To: karora@ngri.res.in

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET FTP Server
# Processed logs from 2017-06-01 UT to 2017-06-30 UT
# Generated at : 2017-07-04 11:10:57
#-----
```

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files : 569
Total : 569

Requests for minute files : 569
Total : 569

Sampling rate : minute

|-- Requested by : imagbrest
| |-- IAGA2002 (quasi-definitive) files : 569

```
# Summary Report for HYB
# Files downloaded from Ottawa INTERMAGNET Web Server
# Processed logs from 2017-06-01 UT to 2017-06-30 UT
# Generated at : 2017-07-04 11:11:02
#-----
```

IMO : HYB

Requests for IAGA2002 (quasi-definitive) files : 7
Requests for IAGA2002 (variation) files : 115
Requests for IAGA2002 (definitive) files : 1161
Total : 1283

Requests for minute files : 1283
Total : 1283

Sampling rate : minute

|-- Requested by : xinzhng@163.com
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : 968754321@qq.com
| |-- IAGA2002 (variation) files : 115
| |-- IAGA2002 (definitive) files : 82
|-- Requested by : 842331722@qq.com
| |-- IAGA2002 (definitive) files : 3
|-- Requested by : saburov_timur@mail.ru
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : acardenasco@unal.edu.co
| |-- IAGA2002 (definitive) files : 6

```
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : 1143818775@qq.com
| |-- IAGA2002 (definitive) files : 275
|-- Requested by : zhangxin\_suxin@163.com
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : srinu.geotech35@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 1
|-- Requested by : liuxc@cea-igp.ac.cn
| |-- IAGA2002 (definitive) files : 734
|-- Requested by : adhyapakan@gmail.com
| |-- IAGA2002 (quasi-definitive) files : 2
|-- Requested by : zaki0yy@gmail.com
| |-- IAGA2002 (definitive) files : 61
```

भूचुंबकीय क्षेत्र घटकों का दीर्घकालिक विचरण

Secular Variation of the Geomagnetic Field Components

1965-2017, हैदराबाद/HYB

