

```

#!/bin/csh -f

# Using GMT 6.0.0 in classic mode

#Author: John R. Smith, SOEST/Univ. Hawaii Manoa, February 2020. (Based on a previous script by Jonathan Tree for BOB export
files from cruise FK161229)
#Purpose: This script was written to process the maggy data on Falkor cruise FK190726 using the
#          SCSData files instead of those from the BOB software using the Custom export Log to text file
#          output format. The BOB files were not included in the data disk from the MTs for this cruise.
#
#          This script was not intended to run automatically all the way through. Rather, it is more of an instruction guide
that consists of
#          commands interspersed with required manual operations in a text editor, moving files, etc. You may copy/paste these
command lines.
#          Please consult the comments for each section of commands. The raw files were processed one at a time all the way
through the script.
#
#          ****NOTE: any other input format will not be parsed correctly****
#
#          -This script must be ran on a sytem with Generic Mapping Tools 6.0.0 installed, or a compatible version
#-----

#goto test1
#goto igrf
#goto time

echo "#####"
echo "Preliminary work on Raw file:"
echo "#####"

# Extract lines with magnetic field data in them
cat raw/COM21-Magnetometer-RAW_20190731-000001.Raw | grep F: > COM21-Magnetometer-RAW_20190731-000001.Raw_grepF

# Exclude lines with garbage magnetic field data in them
cat COM21-Magnetometer-RAW_20190731-000001.Raw_grepF | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-RAW_20190731-
000001.Raw_grepFxxx-v

# Do the above two processes in one step, add extracting F: lines with F:'03[7-9]'
cat raw/COM21-Magnetometer-RAW_20190801-000001.Raw | grep F:03[7-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190801-000001.Raw_grepF03x-v

# In these files the TMF values begin with F:04*. First check for any F:03s by grep before extracting F:04s. Save As with Unix
LF instead of default Windows CRLF.
cat raw/COM21-Magnetometer-RAW_20190805-000001.Raw | grep F:04[0-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190805-000001.Raw_grepF04x-v
cat raw/COM21-Magnetometer-RAW_20190807-000001.Raw | grep F:04[0-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190807-000001.Raw_grepF04x-v
cat raw/COM21-Magnetometer-RAW_20190808-000001.Raw | grep F:04[0-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190808-000001.Raw_grepF04x-v
cat raw/COM21-Magnetometer-RAW_20190810-000001.Raw | grep F:04[0-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190810-000001.Raw_grepF04x-v
cat raw/COM21-Magnetometer-RAW_20190811-000001.Raw | grep F:04[0-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190811-000001.Raw_grepF04x-v
cat raw/COM21-Magnetometer-RAW_20190813-000001.Raw | grep F:04[0-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190813-000001.Raw_grepF04x-v
cat raw/COM21-Magnetometer-RAW_20190817-000001.Raw | grep F:04[0-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190817-000001.Raw_grepF04x-v

# In these files the TMF values begin with both F:03* and F:04*.
cat raw/COM21-Magnetometer-RAW_20190816-000001.Raw | grep F:03[4-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190816-000001.Raw_grepF03-4x-v
cat raw/COM21-Magnetometer-RAW_20190817-000001.Raw | grep F:03[4-9] | grep 'F:030' -v | grep 'F:[0-9][0-9][0-9]' -v >
COM21-Magnetometer-RAW_20190817-000001.Raw_grepF03-4x-v

# File 0822 is apparently test data of no value acquired during the return transit.
cat raw/COM21-Magnetometer-RAW_20190822-000001.Raw | grep F:03[0-9] | grep 'F:[0-9][0-9][0-9]' -v > COM21-Magnetometer-
RAW_20190822-000001.Raw_grepF03x-v

# Check for consistent 'F:' string length in text editor and/or run above grep for 4 digits or more
cat COM21-Magnetometer-RAW_20190805-000001.Raw_grepF04x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190807-000001.Raw_grepF04x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190808-000001.Raw_grepF04x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190810-000001.Raw_grepF04x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190811-000001.Raw_grepF04x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190813-000001.Raw_grepF04x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190816-000001.Raw_grepF03-4x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190817-000001.Raw_grepF04x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190817-000001.Raw_grepF03-4x-v | grep 'F:[0-9][0-9][0-9][0-9]'
cat COM21-Magnetometer-RAW_20190822-000001.Raw_grepF03x-v | grep 'F:[0-9][0-9][0-9][0-9]'

# Even up the column count for all lines in a text editor so we can use awk to parse and manipulate the files [adding dummy 'A'
columns]
Remove 'Q:99's in editor, then replace 'X:' with 'A A A A X:' then replace 'm A A A A X:' with 'm A A X:' then replace 'D:
X:' with 'D: A A X:'.
May also need to replace 's A A A A X:' with 's X:', and/or replace 's A A X:' with 's X:' (Check next file for why this
happened)

# Save As... with new suffix *.Raw_11cols and change default Windows CRLF to Unix LF if not already done in previous step

Parse

echo "#####"

```

```

echo "Removing IGRF from Total Magnetic Field Intensity"
echo "#####"

test1:

#awk '{print $10, $11, "2019.581"}' COM21-Magnetometer-RAW_20190731-000001.Raw_11cols > COM21-Magnetometer-RAW_20190731-000001.Raw_XY_2019.tmp
##awk '{printf "%s %s %s\n", $10, $11, "2019.581"}' COM21-Magnetometer-RAW_20190731-000001.Raw_11cols > COM21-Magnetometer-RAW_20190731-000001.Raw_XY_2019.tmp
#head -5 COM21-Magnetometer-RAW_20190731-000001.Raw_XY_2019.tmp

# Don't actually need 3rd column of decimal year, can assign that on command line of mgd77magref

awk '{print $10, $11}' COM21-Magnetometer-RAW_20190731-000001.Raw_11cols > COM21-Magnetometer-RAW_20190731-000001.xy
head -5 COM21-Magnetometer-RAW_20190731-000001.xy

awk '{print $10, $11}' COM21-Magnetometer-RAW_20190801-000001.Raw_11cols > COM21-Magnetometer-RAW_20190801-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190805-000001.Raw_11cols > COM21-Magnetometer-RAW_20190805-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190807-000001.Raw_11cols > COM21-Magnetometer-RAW_20190807-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190808-000001.Raw_11cols > COM21-Magnetometer-RAW_20190808-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190810-000001.Raw_11cols > COM21-Magnetometer-RAW_20190810-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190811-000001.Raw_11cols > COM21-Magnetometer-RAW_20190811-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190813-000001.Raw_11cols > COM21-Magnetometer-RAW_20190813-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190816-000001.Raw_11cols > COM21-Magnetometer-RAW_20190816-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190817-000001.Raw_11cols > COM21-Magnetometer-RAW_20190817-000001.xy
awk '{print $10, $11}' COM21-Magnetometer-RAW_20190822-000001.Raw_11cols > COM21-Magnetometer-RAW_20190822-000001.xy

igrf:

# Now remove 'x:' and 'y:' using a text editor and save to same file. Use this file for input to calculate IGRF.
# Convert YR.JD to decimal year, e.g., 19.212 from file = 2019.581

# Jul 31 = JD 212. 212/365 = 0.581
# Aug 01 = JD 213 = 2019.584
# Aug 05 = JD 217 = 2019.595
# Aug 07 = JD 219 = 2019.600
# Aug 08 = JD 220 = 2019.603
# Aug 10 = JD 222 = 2019.608
# Aug 11 = JD 223 = 2019.611
# Aug 13 = JD 225 = 2019.616
# Aug 16 = JD 228 = 2019.625
# Aug 17 = JD 229 = 2019.627
# Aug 22 = JD 234 = 2019.641

##gmt mgd77magref COM21-Magnetometer-RAW_20190731-000001.Raw_XY_2019.tmp -A+a0+y+t2019.581 -Ft/0 -V1 > COM21-Magnetometer-RAW_20190731-000001.igrf.data
#gmt mgd77magref COM21-Magnetometer-RAW_20190731-000001.Raw_XY_2019.tmp -A+a0+y+t2019.581 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190731-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190731-000001.XY -A+a0+y+t2019.581 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190731-000001.igrf.data
head -5 COM21-Magnetometer-RAW_20190731-000001.igrf.data

gmt mgd77magref COM21-Magnetometer-RAW_20190801-000001.XY -A+a0+y+t2019.584 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190801-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190805-000001.XY -A+a0+y+t2019.595 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190805-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190807-000001.XY -A+a0+y+t2019.600 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190807-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190808-000001.XY -A+a0+y+t2019.603 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190808-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190810-000001.XY -A+a0+y+t2019.608 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190810-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190811-000001.XY -A+a0+y+t2019.611 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190811-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190813-000001.XY -A+a0+y+t2019.616 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190813-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190816-000001.XY -A+a0+y+t2019.625 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190816-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190817-000001.XY -A+a0+y+t2019.627 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190817-000001.igrf.data
gmt mgd77magref COM21-Magnetometer-RAW_20190822-000001.XY -A+a0+y+t2019.641 -Ft/0 -V1 | awk '{printf "%.3f\n", $1}' > COM21-Magnetometer-RAW_20190822-000001.igrf.data

# Parse data and time, then total magnetic field

time:

awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190731-000001.Raw_11cols > COM21-Magnetometer-RAW_20190731-000001.date_time
head -5 COM21-Magnetometer-RAW_20190731-000001.date_time

awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190801-000001.Raw_11cols > COM21-Magnetometer-RAW_20190801-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190805-000001.Raw_11cols > COM21-Magnetometer-RAW_20190805-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190807-000001.Raw_11cols > COM21-Magnetometer-RAW_20190807-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190808-000001.Raw_11cols > COM21-Magnetometer-RAW_20190808-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190810-000001.Raw_11cols > COM21-Magnetometer-RAW_20190810-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190811-000001.Raw_11cols > COM21-Magnetometer-RAW_20190811-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190813-000001.Raw_11cols > COM21-Magnetometer-RAW_20190813-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190816-000001.Raw_11cols > COM21-Magnetometer-RAW_20190816-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190817-000001.Raw_11cols > COM21-Magnetometer-RAW_20190817-000001.date_time
awk -F, '{print $1, $2}' COM21-Magnetometer-RAW_20190822-000001.Raw_11cols > COM21-Magnetometer-RAW_20190822-000001.date_time

```

magfield:

```
awk '{print $2}' COM21-Magnetometer-RAW_20190731-000001.Raw_11cols > COM21-Magnetometer-RAW_20190731-000001.totalmagfield
head -5 COM21-Magnetometer-RAW_20190731-000001.totalmagfield
```

```
awk '{print $2}' COM21-Magnetometer-RAW_20190801-000001.Raw_11cols > COM21-Magnetometer-RAW_20190801-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190805-000001.Raw_11cols > COM21-Magnetometer-RAW_20190805-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190807-000001.Raw_11cols > COM21-Magnetometer-RAW_20190807-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190808-000001.Raw_11cols > COM21-Magnetometer-RAW_20190808-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190810-000001.Raw_11cols > COM21-Magnetometer-RAW_20190810-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190811-000001.Raw_11cols > COM21-Magnetometer-RAW_20190811-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190813-000001.Raw_11cols > COM21-Magnetometer-RAW_20190813-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190816-000001.Raw_11cols > COM21-Magnetometer-RAW_20190816-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190817-000001.Raw_11cols > COM21-Magnetometer-RAW_20190817-000001.totalmagfield
awk '{print $2}' COM21-Magnetometer-RAW_20190822-000001.Raw_11cols > COM21-Magnetometer-RAW_20190822-000001.totalmagfield
```

Now remove 'F:0' using a text editor and save to same file.

Put it all together and subtract out the IGRF

```
#paste "$raw_dat_dir"tmp.tgM "$raw_dat_dir"XY 2017.tmp "$raw_dat_dir"igrf.data > "$raw_dat_dir"temp_useful.tmp
paste COM21-Magnetometer-RAW_20190731-000001.date_time COM21-Magnetometer-RAW_20190731-000001.xy COM21-Magnetometer-
RAW_20190731-000001.totalmagfield COM21-Magnetometer-RAW_20190731-000001.igrf_data > COM21-Magnetometer-RAW_20190731-
000001.temp_useful.tmp
head -5 COM21-Magnetometer-RAW_20190731-000001.temp_useful.tmp
```

```
paste COM21-Magnetometer-RAW_20190801-000001.date_time COM21-Magnetometer-RAW_20190801-000001.xy COM21-Magnetometer-
RAW_20190801-000001.totalmagfield COM21-Magnetometer-RAW_20190801-000001.igrf_data > COM21-Magnetometer-RAW_20190801-
000001.temp_useful.tmp
paste COM21-Magnetometer-RAW_20190805-000001.date_time COM21-Magnetometer-RAW_20190805-000001.xy COM21-Magnetometer-
RAW_20190805-000001.totalmagfield COM21-Magnetometer-RAW_20190805-000001.igrf_data > COM21-Magnetometer-RAW_20190805-
000001.temp_useful.tmp
paste COM21-Magnetometer-RAW_20190807-000001.date_time COM21-Magnetometer-RAW_20190807-000001.xy COM21-Magnetometer-
RAW_20190807-000001.totalmagfield COM21-Magnetometer-RAW_20190807-000001.igrf_data > COM21-Magnetometer-RAW_20190807-
000001.temp_useful.tmp
paste COM21-Magnetometer-RAW_20190808-000001.date_time COM21-Magnetometer-RAW_20190808-000001.xy COM21-Magnetometer-
RAW_20190808-000001.totalmagfield COM21-Magnetometer-RAW_20190808-000001.igrf_data > COM21-Magnetometer-RAW_20190808-
000001.temp_useful.tmp
# see below
```

farther down below...

```
#awk '{print $3, $4, $5, $6, $2-$6}' "$raw_dat_dir"temp_useful.tmp > "$pro_data_dir"Mag_processed.data
awk '{print $1, $2, $3, $4, $5, $6, $5-$6}' COM21-Magnetometer-RAW_20190731-000001.temp_useful.tmp > COM21-Magnetometer-
RAW_20190731-000001.Mag_processed.data
head -5 COM21-Magnetometer-RAW_20190731-000001.Mag_processed_data
```

```
awk '{print $1, $2, $3, $4, $5, $6, $5-$6}' COM21-Magnetometer-RAW_20190801-000001.temp_useful.tmp > COM21-Magnetometer-
RAW_20190801-000001.Mag_processed.data
awk '{print $1, $2, $3, $4, $5, $6, $5-$6}' COM21-Magnetometer-RAW_20190805-000001.temp_useful.tmp > COM21-Magnetometer-
RAW_20190805-000001.Mag_processed.data
awk '{print $1, $2, $3, $4, $5, $6, $5-$6}' COM21-Magnetometer-RAW_20190807-000001.temp_useful.tmp > COM21-Magnetometer-
RAW_20190807-000001.Mag_processed.data
awk '{print $1, $2, $3, $4, $5, $6, $5-$6}' COM21-Magnetometer-RAW_20190808-000001.temp_useful.tmp > COM21-Magnetometer-
RAW_20190808-000001.Mag_processed.data
```

...or just do it all in one step

```
paste COM21-Magnetometer-RAW_20190808-000001.date_time COM21-Magnetometer-RAW_20190808-000001.xy COM21-Magnetometer-
RAW_20190808-000001.totalmagfield COM21-Magnetometer-RAW_20190808-000001.igrf_data | awk '{print $1, $2, $3, $4, $5, $6, $5-$6}'
> COM21-Magnetometer-RAW_20190808-000001.Mag_processed.data
paste COM21-Magnetometer-RAW_20190810-000001.date_time COM21-Magnetometer-RAW_20190810-000001.xy COM21-Magnetometer-
RAW_20190810-000001.totalmagfield COM21-Magnetometer-RAW_20190810-000001.igrf_data | awk '{print $1, $2, $3, $4, $5, $6, $5-$6}'
> COM21-Magnetometer-RAW_20190810-000001.Mag_processed.data
paste COM21-Magnetometer-RAW_20190811-000001.date_time COM21-Magnetometer-RAW_20190811-000001.xy COM21-Magnetometer-
RAW_20190811-000001.totalmagfield COM21-Magnetometer-RAW_20190811-000001.igrf_data | awk '{print $1, $2, $3, $4, $5, $6, $5-$6}'
> COM21-Magnetometer-RAW_20190811-000001.Mag_processed.data
paste COM21-Magnetometer-RAW_20190813-000001.date_time COM21-Magnetometer-RAW_20190813-000001.xy COM21-Magnetometer-
RAW_20190813-000001.totalmagfield COM21-Magnetometer-RAW_20190813-000001.igrf_data | awk '{print $1, $2, $3, $4, $5, $6, $5-$6}'
> COM21-Magnetometer-RAW_20190813-000001.Mag_processed.data
paste COM21-Magnetometer-RAW_20190816-000001.date_time COM21-Magnetometer-RAW_20190816-000001.xy COM21-Magnetometer-
RAW_20190816-000001.totalmagfield COM21-Magnetometer-RAW_20190816-000001.igrf_data | awk '{print $1, $2, $3, $4, $5, $6, $5-$6}'
> COM21-Magnetometer-RAW_20190816-000001.Mag_processed.data
paste COM21-Magnetometer-RAW_20190817-000001.date_time COM21-Magnetometer-RAW_20190817-000001.xy COM21-Magnetometer-
RAW_20190817-000001.totalmagfield COM21-Magnetometer-RAW_20190817-000001.igrf_data | awk '{print $1, $2, $3, $4, $5, $6, $5-$6}'
> COM21-Magnetometer-RAW_20190817-000001.Mag_processed.data
paste COM21-Magnetometer-RAW_20190822-000001.date_time COM21-Magnetometer-RAW_20190822-000001.xy COM21-Magnetometer-
RAW_20190822-000001.totalmagfield COM21-Magnetometer-RAW_20190822-000001.igrf_data | awk '{print $1, $2, $3, $4, $5, $6, $5-$6}'
> COM21-Magnetometer-RAW_20190822-000001.Mag_processed.data
```

Add header using a text editor "#UTC Date UTC Time Longitude Latitude MagField IGRF(nT) Anomaly(nT)" or "#UTC Date
UTC Time Longitude Latitude MagField IGRF(nT) Anomaly(nT)", the latter for eastern hemisphere.
Move the file to the processed folder, duplicate it, move it to the parsed folder, rename it with a '.orig' suffix.
Now edit bad points and sections out manually in a text editor, if necessary, using the file in the processed folder.
Since pswiggle has some plotting oddities, you may wish to import the processed file into Excel and plot time vs. anomaly in a
line graph to QC the data and easily locate spikes based on time by mousing over.

test plot of total mag field

```
awk 'NR>1 {print $3, $4, $5}' processed/COM21-Magnetometer-RAW_20190731-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190731-000001.TMF_data.xym
```

```

gmt pswiggle COM21-Magnetometer-RAW_20190731-000001.TMF_data.xym -R-176.411703/-176.315426/34.062186/34.152646 -JM10i -Z2500 -
C32000 -Gred -T0.25p,blue -V1 > COM21-Magnetometer-RAW_20190731-000001.TMF_data.ps
gmt pswiggle COM21-Magnetometer-RAW_20190731-000001.TMF_data.xym -R-176.411703/-176.315426/34.062186/34.152646 -JM6i -Baf -Z100i
-C39000 -Gred+p -Wlp -BWSne -P -DjRM+w100+lnT -Tfaint -V1 > COM21-Magnetometer-RAW_20190731-000001.TMF_data.ps
gmt pswiggle COM21-Magnetometer-RAW_20190731-000001.TMF_data.xym -R-176:24.75/-176:17.9/34:03/34:10 -JM6i -Ba2mf0.5m -Z100 -
C39000 -Gred+p -Wlp -BWSne -P -DjRM+w100+lnT -Tfaint -V1 > COM21-Magnetometer-RAW_20190731-000001.TMF_data.ps

# Plot anomaly instead of total mag field

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190731-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190731-000001.Mag_processed_data.xya
gmt info processed/COM21-Magnetometer-RAW_20190731-000001.Mag_processed_data
gmt pswiggle COM21-Magnetometer-RAW_20190731-000001.Mag_processed_data.xya -R-176:24.75/-176:17.9/34:03/34:10 -JM6i -
Ba2mf0.5mg1m -Z50 -Gred+p -Wlp -BWSne -P -DjRM+w100+lnT -T0.5p,green -V1 -U'Hess Rise magnetic anomaly wiggle plot. Positive
anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190731-
000001.Mag_processed_anomaly_data.ps
#gmt xyz2grd COM21-Magnetometer-RAW_20190731-000001.Mag_processed_data.xya -I100e -R-176:24.75/-176:17.9/34:03/34:10 -V -GCOM21-
Magnetometer-RAW_20190731-000001.Mag_processed_data.xya.nc
gmt xyz2grd COM21-Magnetometer-RAW_20190731-000001.Mag_processed_data.xya -I0.005 -R-176:24.75/-176:17.9/34:03/34:10 -V -GCOM21-
Magnetometer-RAW_20190731-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190801-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190801-000001.Mag_processed_data.xya
gmt info processed/COM21-Magnetometer-RAW_20190801-000001.Mag_processed_data
gmt pswiggle COM21-Magnetometer-RAW_20190801-000001.Mag_processed_data.xya -R-176:30/-176:15/34:04.5/34:14.5 -JM6i -Ba2mf0.5mg1m
-Z100 -Gred+p -W0.5p -BWSne -P -DjRM+w100+lnT -T0.5p,green -V1 -U'Hess Rise magnetic anomaly wiggle plot. Positive anomaly =
red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190801-000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190801-000001.Mag_processed_data.xya -I0.005 -R-176:30/-176:15/34:04.5/34:14.5 -V -GCOM21-
Magnetometer-RAW_20190801-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190805-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190805-000001.Mag_processed_data.xya
gmt info processed/COM21-Magnetometer-RAW_20190805-000001.Mag_processed_data
gmt pswiggle COM21-Magnetometer-RAW_20190805-000001.Mag_processed_data.xya -R170:18/170:34/44:29.5/44:40 -JM6.5i -Ba2mf0.5mg1m -
Z500 -Gred+p -Gblue+n -W0.5p -BWSne -P -DjRM+w200+lnT -T0.5p,green -V1 -U'Suiko Seamount magnetic anomaly wiggle plot.
Positive anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190805-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190805-000001.Mag_processed_data.xya -I0.005 -R170:18/170:34/44:29.5/44:40 -V -GCOM21-
Magnetometer-RAW_20190805-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190807-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190807-000001.Mag_processed_data.xya
gmt info COM21-Magnetometer-RAW_20190807-000001.Mag_processed_data.xya
gmt pswiggle COM21-Magnetometer-RAW_20190807-000001.Mag_processed_data.xya -R170:10/170:35/43:58/44:41 -JM4i -Ba5mflmg5m -Z1000
-Gred+p -Gblue+n -W0.5p -BWSne -P -DjLM+w500+lnT -T0.5p,green -V1 -U'Suiko Seamount magnetic anomaly wiggle plot. Positive
anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190807-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190807-000001.Mag_processed_data.xya -I0.005 -R170.205447/170.546795/43.999007/44.646646 -
V -GCOM21-Magnetometer-RAW_20190807-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190808-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190808-000001.Mag_processed_data.xya
gmt info COM21-Magnetometer-RAW_20190808-000001.Mag_processed_data.xya
gmt pswiggle COM21-Magnetometer-RAW_20190808-000001.Mag_processed_data.xya -R170:08/170:21/44:06/44:26 -JM4.75i -Ba5mflmg1m -
Z1000 -Gred+p -Gblue+n -W0.5p -BWSne -P -DjRM+w500+lnT -T0.5p,green -V1 -U'Suiko Seamount magnetic anomaly wiggle plot.
Positive anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190808-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190808-000001.Mag_processed_data.xya -I0.005 -R170.168581/170.33396/44.109275/44.424879 -V
-GCOM21-Magnetometer-RAW_20190808-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190810-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190810-000001.Mag_processed_data.xya
gmt info COM21-Magnetometer-RAW_20190810-000001.Mag_processed_data.xya
gmt pswiggle COM21-Magnetometer-RAW_20190810-000001.Mag_processed_data.xya -R170:23/170:27.5/42:04.5/42:23 -JM1.75i -
Ba2mf0.5mg0.5m -Z300 -Gred+p -Gblue+n -W0.5p -BWSne -P -DjLM+w100+lnT -T0.5p,green -V1 -U'Yomei Seamount magnetic anomaly
wiggle plot. Positive anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190810-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190810-000001.Mag_processed_data.xya -I0.005 -R170:23/170:27.5/42:04/42:23.5 -V -GCOM21-
Magnetometer-RAW_20190810-000001.Mag_processed_data_555m.nc
mbgrid -Ilist1.mb-1 -R170:23/170:27.5/42:04/42:23.5 -OCOM21-Magnetometer-RAW_20190810-000001.Mag_processed_data_555m_MB -F1 -
E0.005/0.005/degrees -V -A1

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190811-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190811-000001.Mag_processed_data.xya
gmt info COM21-Magnetometer-RAW_20190811-000001.Mag_processed_data.xya
gmt pswiggle COM21-Magnetometer-RAW_20190811-000001.Mag_processed_data.xya -R170:43/170:55/40:56/41:28 -JM3i -Ba2mf0.5mg1m -Z500
-Gred+p -Gblue+n -W0.5p -BWSne -P -DjLM+w500+lnT -T0.5p,green -V1 -U'Nintoku Seamount magnetic anomaly wiggle plot. Positive
anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190811-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190811-000001.Mag_processed_data.xya -I0.005 -R170:43/170:55/40:56/41:28 -V -GCOM21-
Magnetometer-RAW_20190811-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190813-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190813-000001.Mag_processed_data.xya
gmt info COM21-Magnetometer-RAW_20190813-000001.Mag_processed_data.xya
gmt pswiggle COM21-Magnetometer-RAW_20190813-000001.Mag_processed_data.xya -R171:05/171:17/38:45/38:51 -JM6.5i -Ba2mf0.5mg1m -
Z500 -Gred+p -Gblue+n -W0.5p -BWSne -P -DjRM+w500+lnT -T0.5p,green -V1 -U'Jingu Seamount magnetic anomaly wiggle plot.
Positive anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190813-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190813-000001.Mag_processed_data.xya -I0.005 -R171:05/171:17/38:45/38:51 -V -GCOM21-
Magnetometer-RAW_20190813-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190816-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190816-000001.Mag_processed_data.xya
gmt info COM21-Magnetometer-RAW_20190816-000001.Mag_processed_data.xya

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gmt pswiggle COM21-Magnetometer-RAW_20190816-000001.Mag_processed_data.xya -R171:14/171:46/36:15/36:55 -JM6.5i -Ba5mflmg5m -
Z1000 -Gred+p -Gblue+n -W0.5p -BWSne -P -DjRM+w500+lnT -T0.5p,green -V1 -U'Annei Seamount magnetic anomaly wiggle plot.
Positive anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190816-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190816-000001.Mag_processed_data.xya -I0.005 -R171:14/171:46/36:15/36:55 -V -GCOM21-
Magnetometer-RAW_20190816-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190817-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190817-000001.Mag_processed_data.xya
gmt info COM21-Magnetometer-RAW_20190817-000001.Mag_processed_data.xya
gmt pswiggle COM21-Magnetometer-RAW_20190817-000001.Mag_processed_data.xya -R171:48.5/172:03/35:33/35:39 -JM6.5i -Ba2mflmg2m -
Z200 -Gred+p -Gblue+n -W0.5p -BWSne -P -DjRM+w100+lnT -T0.5p,green -V1 -U'Koko Seamount magnetic anomaly wiggle plot. Positive
anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190817-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190817-000001.Mag_processed_data.xya -I0.005 -R171:48.5/172:03/35:33/35:39 -V -GCOM21-
Magnetometer-RAW_20190817-000001.Mag_processed_data_555m.nc

awk 'NR>1 {print $3, $4, $7}' processed/COM21-Magnetometer-RAW_20190822-000001.Mag_processed_data > COM21-Magnetometer-
RAW_20190822-000001.Mag_processed_data.xya
gmt info COM21-Magnetometer-RAW_20190822-000001.Mag_processed_data.xya
gmt pswiggle COM21-Magnetometer-RAW_20190822-000001.Mag_processed_data.xya -R-170:26/-170:22.5/28:49/28:51 -JM6.5i -Balmf0.5mg1m
-Z100 -Gred+p -Gblue+n -W0.5p -BWSne -P -DjRM+w100+lnT -T0.5p,green -V1 -U'Return transit magnetic anomaly wiggle plot.
Positive anomaly = red, negative anomaly = blue, ship track = green.' > COM21-Magnetometer-RAW_20190822-
000001.Mag_processed_anomaly_data.ps
gmt xyz2grd COM21-Magnetometer-RAW_20190822-000001.Mag_processed_data.xya -I0.005 -R-170:26/-170:22.5/28:49/28:51 -V -GCOM21-
Magnetometer-RAW_20190822-000001.Mag_processed_data_555m.nc

# Import into existing Fledermaus scene to QC it
# Rename the files for archiving and distribution
FK190726_Magnetometer_20190731_processed_data.txt
FK190726_Magnetometer_20190801_processed_data.txt
FK190726_Magnetometer_20190805_processed_data.txt
FK190726_Magnetometer_20190807_processed_data.txt
FK190726_Magnetometer_20190808_processed_data.txt
FK190726_Magnetometer_20190810_processed_data.txt
FK190726_Magnetometer_20190811_processed_data.txt
FK190726_Magnetometer_20190813_processed_data.txt
FK190726_Magnetometer_20190816_processed_data.txt
FK190726_Magnetometer_20190817_processed_data.txt
FK190726_Magnetometer_20190822_processed_data.txt <== This one is a transit test file and is not part of the project

# ***** On to the rest of the files! *****

```