Récepteur automatique de radiosondes (auto_rx v1.6.0)

https://github.com/projecthorus/radiosonde_auto_rx (Linux – Raspberry Pi)

Manufacturer	Model	Position	Temperature	Humidity	Pressure	XDATA
Vaisala	RS92-SGP/NGP	✔	✔	✔	✔	✔
Vaisala	RS41-SG/SGP/SGM	✔	✔	✔	✔ (for -SGP)	✔
Graw	DFM06/09/17	✔	✔	✘	✘	✔
Meteomodem	M10	✔	✔	✔	Not Sent	✘
Meteomodem	M20	✔	✔	✔	✔ (For some models)	✘
Intermet Systems	iMet-4	✔	✔	✔	✔	✔
Intermet Systems	iMet-54	✔	✔	✔	Not Sent	✘

Envoi des données de la station en temps réel sur https://sondehub.org/ et https://radiosondy.info/ (SQ6KXY)

Interface web en local https://github.com/projecthorus/radiosonde_auto_rx/wiki/Web-Interface-Guide

Groupe de discussion https://groups.google.com/g/radiosonde_auto_rx

Nouveautés de la version 1.6.0

https://github.com/projecthorus/radiosonde_auto_rx/releases

Meilleur décodage

Support de nouvelles sondes

Support de AirSpyServer, SDR large bande 5 ou 8 MHz pour décoder simultanément jusque 10 sondes :

https://github.com/projecthorus/radiosonde_auto_rx/wiki/Network-SDR-Decoding-Instructions

Correction de bugs divers

Documentation en anglais

Style wikipédia : https://github.com/projecthorus/radiosonde_auto_rx/wiki

Projet ***collaboratif et libre***

Mark Jessop - vk5qi@rfhead.net

Michaela Wheeler - radiosonde@michaela.lgbt

Installation normale / native (en tant que user pi, éviter root)

https://github.com/projecthorus/radiosonde_auto_rx/wiki#setup-guide

```
sudo apt-get update
sudo apt-get upgrade
sudo apt-get install python3 python3-numpy python3-setuptools python3-crcmod
python3-requests python3-dateutil python3-pip python3-flask sox git build-
essential libtool cmake usbutils libusb-1.0-0-dev rng-tools libsamplerate-dev
libatlas3-base libgfortran5

sudo apt-get install rtl-sdr
reboot

rtl_test

git clone https://github.com/projecthorus/radiosonde_auto_rx.git
cd radiosonde_auto_rx/auto_rx
./build.sh
cp station.cfg.example station.cfg

sudo pip3 install -r requirements.txt

sudo cp auto_rx.service /etc/systemd/system/
sudo nano /etc/systemd/system/auto_rx.service

sudo systemctl enable auto_rx.service
sudo systemctl start auto_rx.service
```

Installation dans un container Docker (user pi, éviter root)

https://github.com/projecthorus/radiosonde_auto_rx/wiki/Docker

```
curl -fsSL https://get.docker.com -o get-docker.sh
sudo sh get-docker.sh
```

```
sudo usermod -aG docker $(whoami)
```

```
mkdir -p ~/radiosonde_auto_rx/log
curl -o ~/radiosonde_auto_rx/station.cfg
https://raw.githubusercontent.com/projecthorus/radiosonde_auto_rx/master/
auto_rx/station.cfg.example
```

```
docker run \
  -d \
  --name radiosonde_auto_rx \
  --restart="always" \
  --device=/dev/bus/usb \
  --network=host \
  -v ~/radiosonde_auto_rx/station.cfg:/opt/auto_rx/station.cfg:ro \
  -v ~/radiosonde_auto_rx/log/:/opt/auto_rx/log/ \
  ghcr.io/projecthorus/radiosonde_auto_rx:latest
```

```
docker logs --tail 50 --follow radiosonde_auto_rx
```

Configuration des paramètres dans le fichier station.cfg

```
min_freq = 400.05
max_freq = 406.0

never_scan = [403.200, 402.73, 404.000]
always_scan = [403.500, 403.000, 402.7, 405.3, 403.9, 405.1, 404.5]

[location]
station_lat = 50.653    https://www.openstreetmap.org/ nombre négatif = hémisphère sud --> Sydney = -33.89
station_lon = 4.551     New York = -74.02   Tokyo = 139.75
station_alt = 98.0      https://fr-be.topographic-map.com/map-j9m/Belgique/


####################
# RTLSDR SETTINGS #
####################
[sdr]
sdr_quantity = 2
# Individual SDR Settings.
[sdr_1]
device_idx = 00000002
ppm = 0
gain = -1
bias = False
[sdr_2]
device_idx = 00000003
ppm = 0
gain = -1
bias = False

uploader_callsign = ON3ZZT-12
uploader_antenna = UHF 400 - 470 MHz
aprs_user = ON3ZZT-12
# APRS-IS Passcode. You can generate one for your callsign here: https://apps.magicbug.co.uk/passcode/
aprs_pass = 21922
```

Exemple de données envoyées

```
root@raspberrypisatnogs2:~/radiosonde_auto_rx/auto_rx/log# cat 20220615-112759_T3010252_RS41_402700_sonde.log
timestamp,serial,frame,lat,lon,alt,vel_v,vel_h,heading,temp,humidity,pressure,type,freq_mhz,snr,f_error_hz,sats,batt_v,burst_timer
,aux_data
2022-06-15T11:28:14.000Z,T3010252,4333,49.67473,7.52806,12230.6,4.2,10.4,118.6,-273.0,-1.0,-1.0,RS41,402.700,7.6,187,10,2.7,-1,-1
2022-06-15T11:28:15.000Z,T3010252,4334,49.67469,7.52818,12234.8,4.1,10.1,119.4,-273.0,-1.0,-1.0,RS41,402.700,7.6,187,10,2.8,-1,-1
2022-06-15T11:30:24.000Z,T3010252,4463,49.66489,7.54294,12755.6,4.5,12.8,145.6,-273.0,-1.0,-1.0,RS41,402.700,7.7,187,10,2.7,-1,-1
2022-06-15T11:30:28.000Z,T3010252,4467,49.66452,7.54335,12771.4,3.4,12.5,145.3,-273.0,-1.0,-1.0,RS41,402.700,6.8,187,10,2.8,-1,-1
2022-06-15T11:32:36.000Z,T3010252,4595,49.65755,7.55968,13288.9,3.4,13.4,109.4,-273.0,-1.0,-1.0,RS41,402.700,8.1,187,10,2.8,-1,-1
2022-06-15T11:32:37.000Z,T3010252,4596,49.65751,7.55986,13292.5,4.1,13.0,108.3,-273.0,-1.0,-1.0,RS41,402.700,8.1,187,10,2.8,-1,-1
2022-06-15T11:32:38.000Z,T3010252,4597,49.65748,7.56003,13296.5,4.4,12.7,105.7,-273.0,-1.0,-1.0,RS41,402.700,8.1,187,10,2.8,-1,-1
2022-06-15T11:32:39.000Z,T3010252,4598,49.65744,7.56020,13300.5,3.6,12.7,105.7,-273.0,-1.0,-1.0,RS41,402.700,8.3,187,10,2.8,-1,-1
2022-06-15T11:32:40.000Z,T3010252,4599,49.65741,7.56036,13304.8,4.6,12.8,108.3,-273.0,-1.0,-1.0,RS41,402.700,8.8,187,10,2.7,-1,-1
root@raspberrypisatnogs2:~/radiosonde_auto_rx/auto_rx/log#
```

timestamp	serial	frame	lat	lon	alt	vel_v	vel_h	heading	temp	humidity	pressure	type	freq_mhz	snr	f_error_hz	sats	batt_v	burst_timer	aux_data
2022-06-15T11:28:14.000Z	T3010252	4333	49.67473	7.52806	12230.6	4.2	10.4	118.6	-273	-1	-1	RS41	402.7	7.6	187	10	2.7	-1	-1
2022-06-15T11:28:15.000Z	T3010252	4334	49.67469	7.52818	12234.8	4.1	10.1	119.4	-273	-1	-1	RS41	402.7	7.6	187	10	2.8	-1	-1
2022-06-15T11:30:24.000Z	T3010252	4463	49.66489	7.54294	12755.6	4.5	12.8	145.6	-273	-1	-1	RS41	402.7	7.7	187	10	2.7	-1	-1
2022-06-15T11:30:28.000Z	T3010252	4467	49.66452	7.54335	12771.4	3.4	12.5	145.3	-273	-1	-1	RS41	402.7	6.8	187	10	2.8	-1	-1
2022-06-15T11:32:36.000Z	T3010252	4595	49.65755	7.55968	13288.9	3.4	13.4	109.4	-273	-1	-1	RS41	402.7	8.1	187	10	2.8	-1	-1
2022-06-15T11:32:37.000Z	T3010252	4596	49.65751	7.55986	13292.5	4.1	13	108.3	-273	-1	-1	RS41	402.7	8.1	187	10	2.8	-1	-1
2022-06-15T11:32:38.000Z	T3010252	4597	49.65748	7.56003	13296.5	4.4	12.7	105.7	-273	-1	-1	RS41	402.7	8.1	187	10	2.8	-1	-1
2022-06-15T11:32:39.000Z	T3010252	4598	49.65744	7.5602	13300.5	3.6	12.7	105.7	-273	-1	-1	RS41	402.7	8.3	187	10	2.8	-1	-1
2022-06-15T11:32:40.000Z	T3010252	4599	49.65741	7.56036	13304.8	4.6	12.8	108.3	-273	-1	-1	RS41	402.7	8.8	187	10	2.7	-1	-1

192.168.1.47:5000

radiosonde autorx

Log

2023-02-11 17:51:56 UTC – INFO
Scanner (RTLSDR 00000002) - Detected peaks on 19 frequencies (MHz): [403.5 403. 402.7 405.3 403.9 405.1 404.5 401.82 400.91 400.9 404.54 405.46 403.64 403.63 404.55 402.72 401.83 405.45 400.92]

2023-02-11 17:51:35 UTC – INFO
Scanner (RTLSDR 00000002) - Running frequency scan.

2023-02-11 17:48:15 UTC – INFO
Scanner (RTLSDR 00000002) - Detected peaks on 19 frequencies (MHz): [403.5 403. 402.7 405.3 403.9 405.1 404.5 401.82 400.91 400.9 403.64 404.54 401.81 403.63 405.46 402.72 401.83 404.55 405.45]

2023-02-11 17:47:54 UTC – INFO
Scanner (RTLSDR 00000002) - Running frequency scan.

2023-02-11 17:44:34 UTC – INFO
Scanner (RTLSDR 00000002) - Detected peaks on 19 frequencies (MHz): [403.5 403. 402.7 405.3 403.9 405.1 404.5 400.91 401.82 400.9 404.54 403.64 401.81 403.63 405.46 402.72 404.55 401.83 405.45]

2023-02-11 17:44:13 UTC – INFO
Scanner (RTLSDR 00000002) - Running frequency scan.

☰ Radiosonde Auto-RX 1.6.0

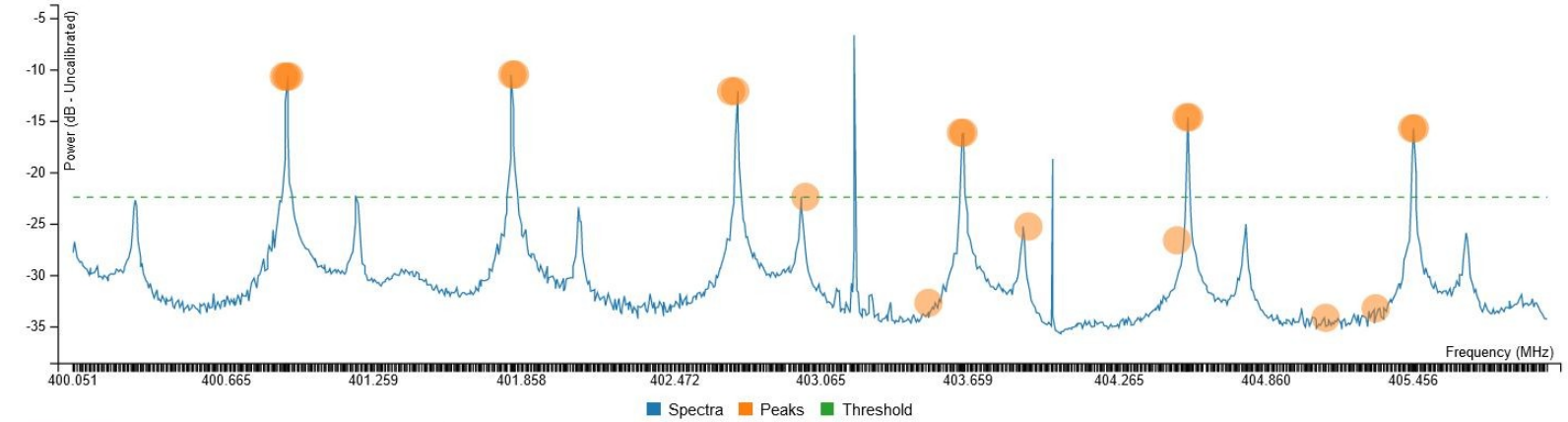
Station: ON7IO-15 / ON7IO-15

Current Task: SDR #00000002: Scanning SDR #00000003: Not Tasked

SDR	Age	Type	Freq (MHz)	ID	Time	Frame	Latitude	Longitude	Alt (m)	Vel (kph)	Asc (m/s)	Temp (°C)	RI

Scan Results:

Latest Scan: 2023-02-11 17:51:56 UTC



192.168.1.52:5005

Log

2023-02-11 17:52:40 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:52:09 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:51:38 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:51:07 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:50:36 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:50:05 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:49:34 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:49:03 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:48:32 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:48:01 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:47:31 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-11 17:47:00 UTC – INFO

☰ Radiosonde Auto-RX 1.6.0

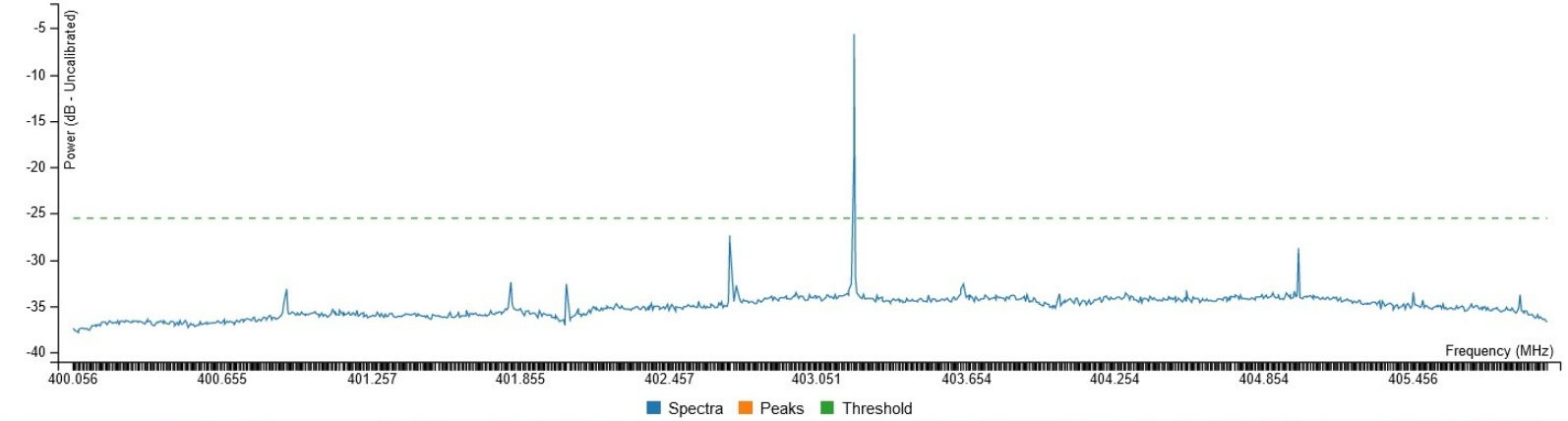
Station: ON7IO-17 / ON7IO-17

Current Task: SDR #0: Scanning

SDR	Age	Type	Freq (MHz)	ID	Time	Frame	Latitude	Longitude	Alt (m)	Vel (kph)	Asc (m/s)	Temp (°C)
	old	RS41-SGP	402.700 MHz	T3010618	2023-02-11T17:33:51.000Z	3851	**49.30874**	**7.17861**	12227.8	94.5	4.7	-68.4

Scan Results:

Latest Scan: 2023-02-11 17:52:30 UTC



192.168.1.47:5000

Log

2023-02-11 18:04:43 UTC – INFO
*APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T3010618 *180459h4857.89N/00725.68EO130/068/A=068889 Clb=4.8m/s t=-76.6C h=7.9% p=43.6hPa 402.700 MHz Type=RS41-SGP ser=T3010618 Radiosonde !w0,!*

2023-02-11 18:04:37 UTC – INFO
Sondehub Uploader - Uploaded 24 telemetry packets to Sondehub in 0.6 seconds.

2023-02-11 18:04:12 UTC – INFO
*APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T3010618 *180428h4858.26N/00724.95EO121/063/A=068399 Clb=3.6m/s t=-77.1C h=-1.0% p=-1.0hPa 402.700 MHz Type=RS41-SGP ser=T3010618 Radiosonde !w!@!*

2023-02-11 18:04:07 UTC – INFO
Sondehub Uploader - Uploaded 30 telemetry packets to Sondehub in 0.7 seconds.

2023-02-11 18:03:41 UTC – INFO
*APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T3010618 *180357h4858.61N/00724.34EO129/058/A=067894 Clb=3.5m/s t=-273.0C h=-1.0% p=-1.0hPa 402.700 MHz Type=RS41-SGP ser=T3010618 Radiosonde !w[d!*

2023-02-11 18:03:36 UTC – INFO

☰ Radiosonde Auto-RX 1.6.0

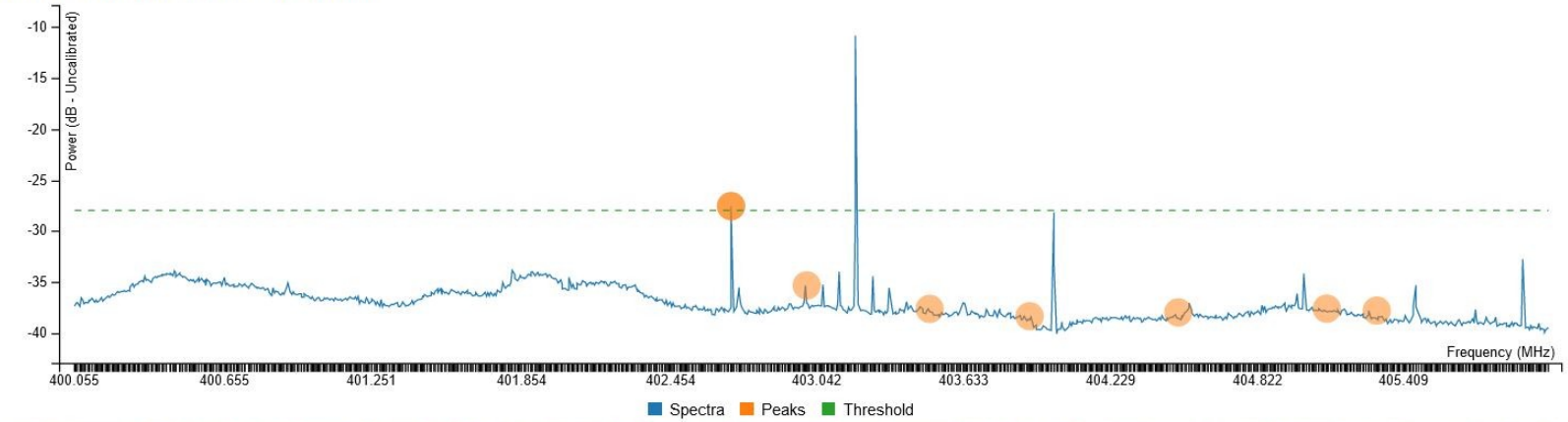
Station: ON7IO-15 / ON7IO-15

Current Task: SDR #00000002: Decoding (402.700 MHz)

SDR	Age	Type	Freq (MHz)	ID	Time	Frame	Latitude	Longitude	Alt (m)	Vel (kph)	Asc (m/s)	Temp (°C)	RI
00000...	4 s	RS41-S...	402.700 MHz	T3010618	2023-02-11T18:05:13.001Z	5733	**48.96188**	**7.43362**	21062.7	137.8	4.4	-76.5	8

Scan Results:

Latest Scan: 2023-02-11 18:02:40 UTC



192.168.1.47:5000

Log

2023-02-12 11:45:51 UTC – INFO
*APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T3010365 *114554h4930.64N/00703.87EO169/031/A=055021 Clb=4.1m/s t=-273.0C h=-1.0% p=90.1hPa 402.700 MHz Type=RS41-SGP ser=T3010365 Radiosonde !wDm!*

2023-02-12 11:45:48 UTC – INFO
Sondehub Uploader - Uploaded 19 telemetry packets to Sondehub in 0.9 seconds.

2023-02-12 11:45:16 UTC – INFO
Decoder (RTLSDR 00000002) RS41 402.700 - Starting decoder subprocess.

2023-02-12 11:45:16 UTC – INFO
Decoder (RTLSDR 00000002) RS41 402.700 - Using fsk_demod decoder chain.

2023-02-12 11:45:13 UTC – INFO
Task Manager - SDR #00000002 has been allocated to Decoder (RS41, 402.700 MHz).

2023-02-12 11:45:13 UTC – INFO
Scanner (RTLSDR 00000002) - Scanner Thread Closed.

2023-02-12 11:45:01 UTC – INFO
Scanner (RTLSDR 00000002) - Waiting for current scan to finish...

2023-02-12 11:45:01 UTC – INFO

☰ Radiosonde Auto-RX 1.6.0

Station: ON7IO-15 / ON7IO-15

Current Task: SDR #00000002: Decoding (402.700 MHz)

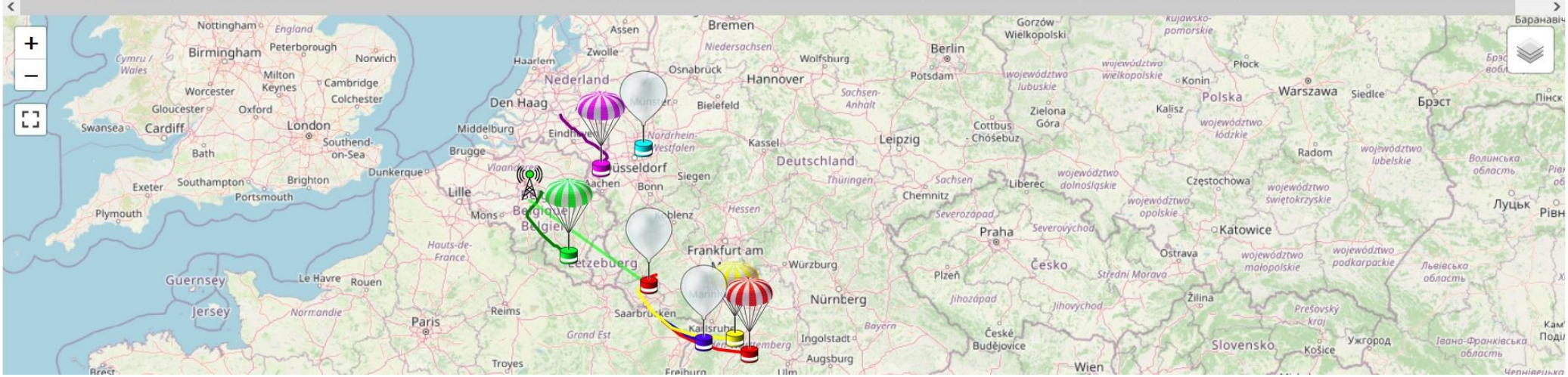
SDR	Age	Type	Freq (MHz)	ID	Time	Frame	Latitude	Longitude	Alt (m)	Vel (kph)	Asc (m/s)	Temp (°C)	
	old	RS41-SGP	402.700 MHz	T3010618	2023-02-11T18:52:03.000Z	8543	**48.53343**	**9.20868**	26920.3	173.1	-17.4	-273	-
	old	IMET	402.998 MHz	CE9C4039	2023-02-12T00:05:18Z	7402	**49.89058**	**5.38645**	22215.0	129.8	-30.4	-79.29	8
	old	RS41-SGP	403.900 MHz	U4244149	2023-02-12T01:47:27.000Z	8492	**51.07190**	**6.06182**	2461.0	16.7	-5.5	2.9	6
	old	RS41-SGP	402.700 MHz	T3040457	2023-02-12T06:57:21.000Z	8768	**48.74767**	**8.89131**	30924.6	250.1	-37.4	-57.3	0
	old	RS41-SGP	405.300 MHz	U2220941	2023-02-12T11:11:49.000Z	2839	**51.35073**	**6.97039**	8499.0	12.3	5.3	-273	-
	old	RS41-SGP	402.700 MHz	T3040532	2023-02-12T00:32:42.000Z	6907	**48.70340**	**8.23386**	30840.6	227.8	5.4	-56.8	0
00000…	39 s	RS41-SGP	402.700 MHz	T3010365	2023-02-12T11:45:54.000Z	4740	**49.51073**	**7.06464**	16770.5	60.9	4.3	-273	-

☰ Radiosonde Auto-RX 1.6.0

Station: ON7IO-15 / ON7IO-15

Current Task: SDR #00000002: Decoding (402.700 MHz)

SDR	Age	Type	Freq (MHz)	ID	Time	Frame	Latitude	Longitu...	Alt (m)	Vel (kph)	Asc (m/s)	Temp (°C)	RH (%)	Az (°)	El (°)	Range (km)	SNR (dB)	Other
	old	RS41-SGP	402.700 MHz	T3010618	2023-02-11T18:52:03....	8543	**48.53343**	**9.20868**	26920.3	173.1	-17.4	-273	-1	123.3	1.89	411.7	7.7	2.4 V
	old	IMET	402.998 MHz	CE9C4039	2023-02-12T00:05:18Z	7402	**49.89058**	**5.38645**	22215.0	129.8	-30.4	-79.29	8.1	144.7	11.6	106.1		3.5 V
	old	RS41-SGP	403.900 MHz	U4244149	2023-02-12T01:47:27....	8492	**51.07190**	**6.06182**	2461.0	16.7	-5.5	2.9	6.7	65.7	0.65	115.7	9.1	BT 07:49:57 2.6 V
	old	RS41-SGP	402.700 MHz	T3040457	2023-02-12T06:57:21....	8768	**48.74767**	**8.89131**	30924.6	250.1	-37.4	-57.3	0.6	122.5	2.96	379.3	7.8	BT 02:53:27 2.5 V
	old	RS41-SGP	405.300 MHz	U2220941	2023-02-12T11:11:49....	2839	**51.35073**	**6.97039**	8499.0	12.3	5.3	-273	-1	64.5	1.75	186.4	12.2	2.9 V
	old	RS41-SGP	402.700 MHz	T3040532	2023-02-12T00:32:42....	6907	**48.70340**	**8.23386**	30840.6	227.8	5.4	-56.8	0.8	127.9	3.58	344.5	8.3	BT 03:19:11 2.3 V
000...	44 s	RS41	402.700 MHz	T3010365	2023-02-12T11:48:05....	4871	**49.49548**	**7.07558**	17344.1	63.6	4.5	-273	-1	124.6	3.45	222.4	13.9	2.6 V



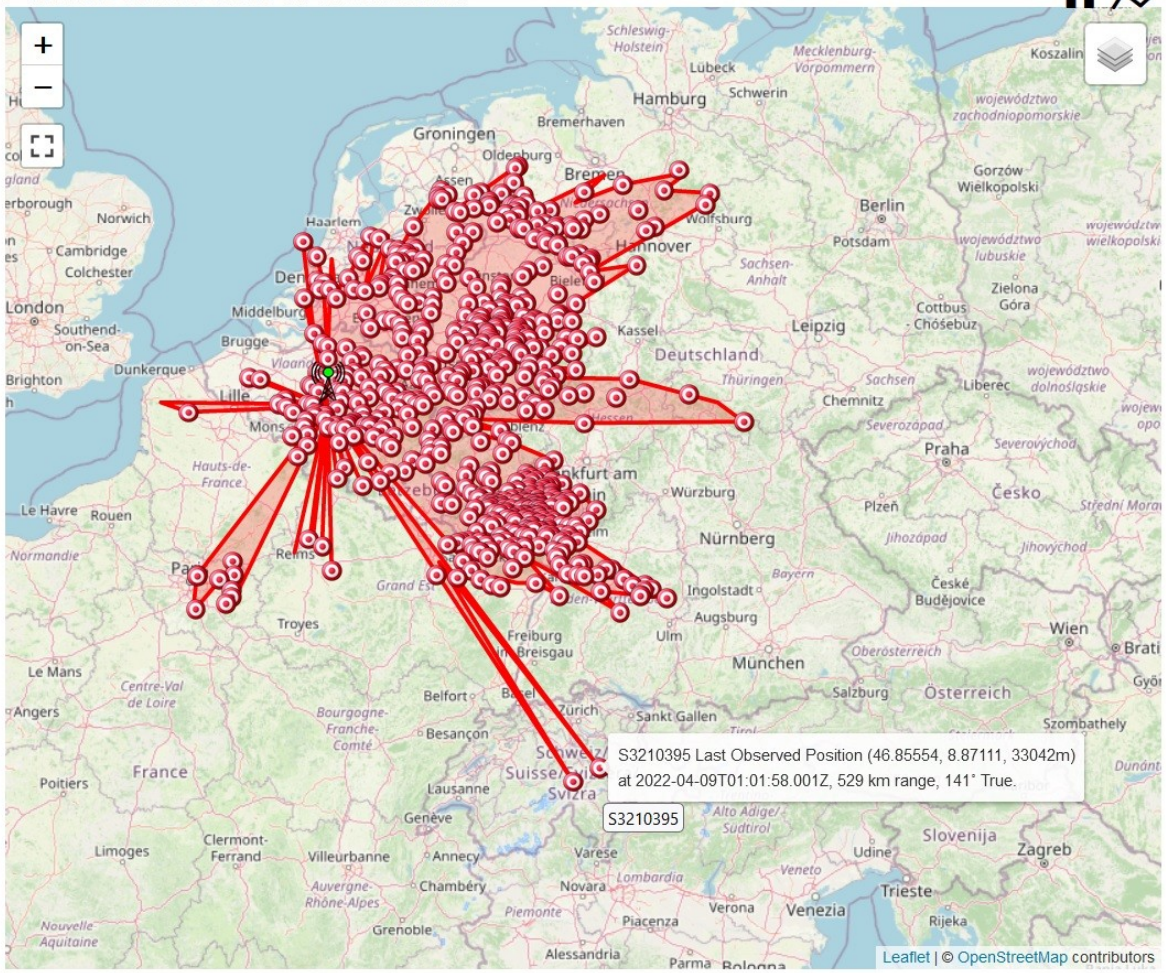
192.168.1.47:5000/historical.html

Sonde List

Select All | Deselect All | Reset | Plot Paths | Plot Last RX | Plot First RX | Plot Coverage | Plot Skew-T | Download Logs

Date	Type	Serial	Cou...	Last...	Last...	Max...
2022-04-09T01:01:42Z	RS41	S3210395	1	33042 m	529 km	529 km
2022-04-01T00:57:45Z	RS41	S3150781	1	33153 m	526 km	526 km
2022-03-17T18:18:38Z	RS41	T1250565	34	29749 m	482 km	482 km
2022-03-18T06:17:32Z	RS41	T1250195	79	28719 m	473 km	473 km
2022-03-22T19:22:51Z	RS41	T1310062	2715	35158 m	378 km	472 km
2022-05-11T01:12:52Z	RS41	T1920394	58	34433 m	471 km	471 km
2022-03-22T13:44:17Z	RS41	T1310198	36	26241 m	465 km	466 km
2022-06-13T06:25:12Z	RS41	S1620477	1	31193 m	448 km	448 km
2022-05-19T19:57:05Z	RS41	T1930089	347	35751 m	408 km	441 km
2022-04-07T08:32:22Z	DFM09	18082246	338	22560 m	439 km	439 km
2022-06-12T12:29:49Z	RS41	S1641074	194	27170 m	420 km	427 km
2022-05-26T06:23:23Z	RS41	T3440576	1	29775 m	426 km	426 km
2022-05-15T06:16:47Z	RS41	U1550570	43	30877 m	420 km	421 km
2022-05-11T00:30:59Z	RS41	T3341206	4	31772 m	421 km	421 km
2022-04-25T06:38:02Z	RS41	T3910299	678	23490 m	406 km	419 km
2022-05-16T06:21:49Z	RS41	U1550565	12	26650 m	417 km	417 km
2023-02-11T18:01:05Z	RS41	T3010618	546	26920 m	411 km	411 km
2022-04-08T08:11:37Z	DFM09	17051283	381	22070 m	411 km	411 km
2022-04-08T11:02:16Z	RS41	T1510301	141	25691 m	405 km	405 km
2022-04-07T10:52:47Z	DFM09	18082093	682	22196 m	405 km	405 km

Radiosonde Auto-RX Historical

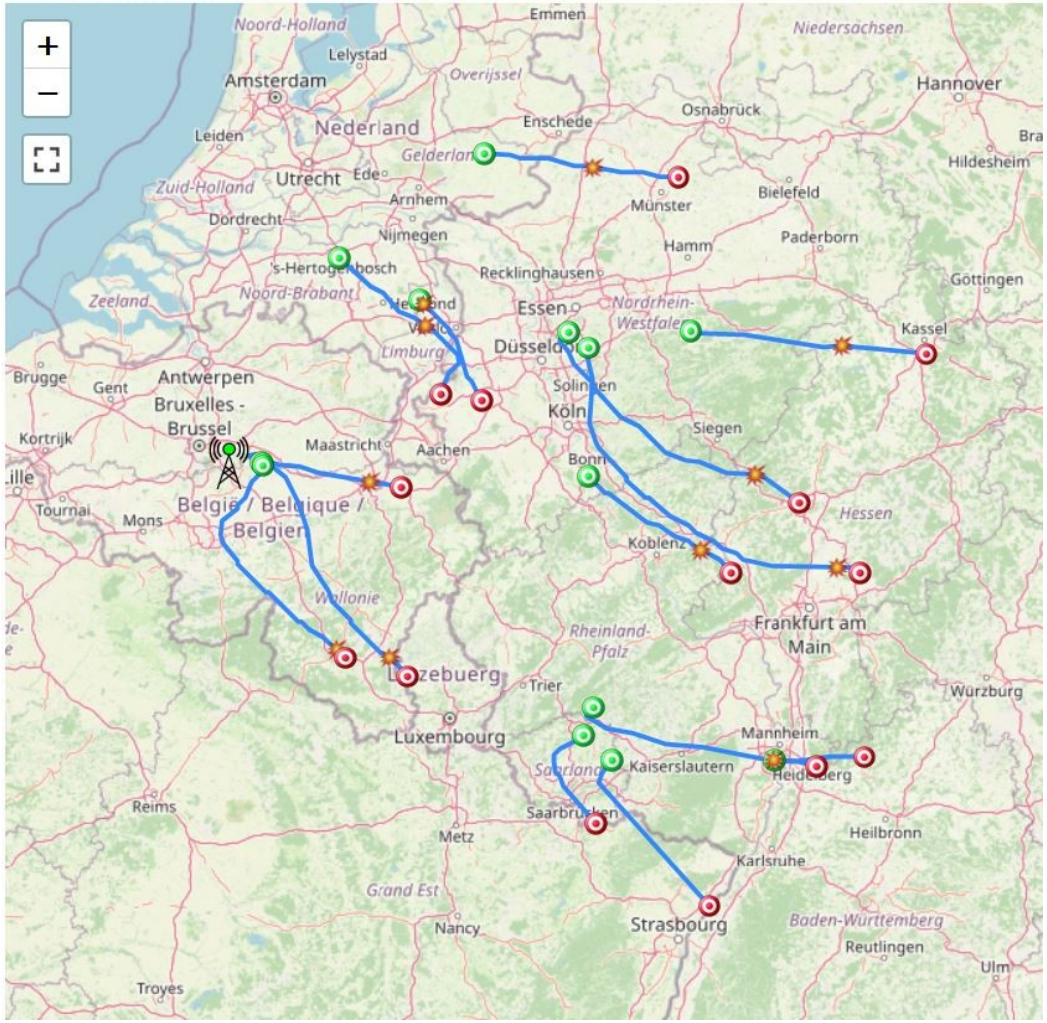


Sonde List

Select All | Deselect All | Reset | Plot Paths | Plot Last RX | Plot First RX | Plot Coverage | Plot Skew-T | Download Logs

Date	Type	Serial	Cou...	Last...	Last...	Max...	
2023-02-12T11:09:33Z	RS41	U2220941	3908	19196 m	286 km	286 km	☐
2023-02-12T05:31:19Z	RS41	T3040457	1996	22448 m	254 km	254 km	☐
2023-02-12T00:42:55Z	RS41	U4244149	3318	3275 m	115 km	128 km	☐
2023-02-12T00:07:20Z	RS41	U3350244	1448	19233 m	256 km	256 km	☐
2023-02-11T22:13:03Z	iMet-1/4	CE9C4039	6697	22215 m	105 km	105 km	☐
2023-02-11T17:25:38Z	RS41	T3010618	335	26979 m	326 km	326 km	☐
2023-02-11T11:09:59Z	RS41	U2150912	3635	24414 m	321 km	321 km	☐
2023-02-11T00:35:36Z	RS41	U4235008	2154	3816 m	133 km	134 km	☐
2023-02-10T22:57:06Z	iMet-1/4	3B409D42	5765	16568 m	131 km	131 km	☐
2023-02-09T05:17:56Z	RS41	T3040606	1740	33583 m	351 km	351 km	☐
2023-02-09T00:49:46Z	RS41	U4254646	1716	10750 m	269 km	269 km	☐
2023-02-09T00:33:01Z	RS41	T3040458	427	18772 m	329 km	329 km	☐
2023-02-09T00:06:35Z	RS41	U2210912	1352	17105 m	353 km	353 km	☐
2023-02-08T22:29:07Z	iMet-1/4	323F5780	5430	14989 m	87 km	87 km	☐

☰ Radiosonde Auto-RX Historical



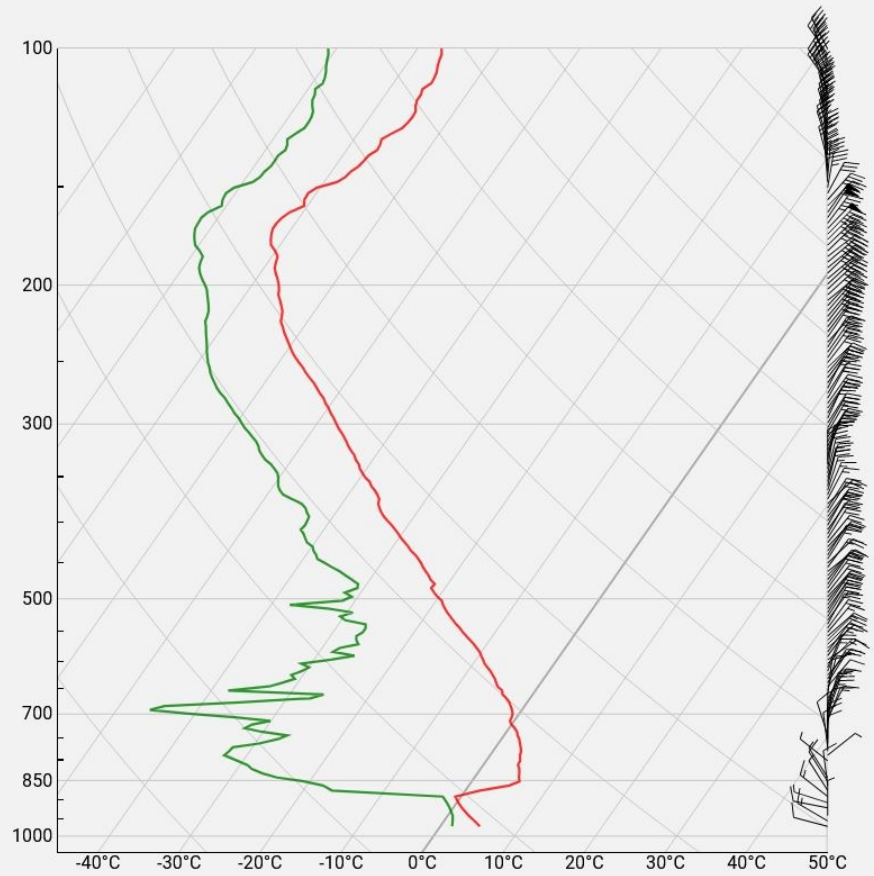
Sonde List

Select All | Deselect All | Reset | Plot Paths | Plot Last RX | Plot First RX | Plot Coverage | Plot Skew-T | Download Logs

Date	Type	Serial	Cou...	Last...	Last...	Max...	
2023-02-12T11:09:33Z	RS41	U2220941	3908	19196 m	286 km	286 km	☐
2023-02-12T05:31:19Z	RS41	T3040457	1996	22448 m	254 km	254 km	☐
2023-02-12T00:42:55Z	RS41	U4244149	3318	3275 m	115 km	128 km	☐
2023-02-12T00:07:20Z	RS41	U3350244	1448	19233 m	256 km	256 km	☐
2023-02-11T22:13:03Z	iMet-1/4	CE9C4039	6697	22215 m	105 km	105 km	☑
2023-02-11T17:25:38Z	RS41	T3010618	335	26979 m	326 km	326 km	☐
2023-02-11T11:09:59Z	RS41	U2150912	3635	24414 m	321 km	321 km	☐
2023-02-11T00:35:36Z	RS41	U4235008	2154	3816 m	133 km	134 km	☐
2023-02-10T22:57:06Z	iMet-1/4	3B409D42	5765	16568 m	131 km	131 km	☐
2023-02-09T05:17:56Z	RS41	T3040606	1740	33583 m	351 km	351 km	☐
2023-02-09T00:49:46Z	RS41	U4254646	1716	10750 m	269 km	269 km	☐
2023-02-09T00:33:01Z	RS41	T3040458	427	18772 m	329 km	329 km	☐
2023-02-09T00:06:35Z	RS41	U2210912	1352	17105 m	353 km	353 km	☐
2023-02-08T22:29:07Z	iMet-1/4	323F5780	5430	14989 m	87 km	87 km	☐

☰ Radioso

Skew-T - Intermet Systems iMet-1/4 CE9C4039 2023-02-11T22:13:19Z

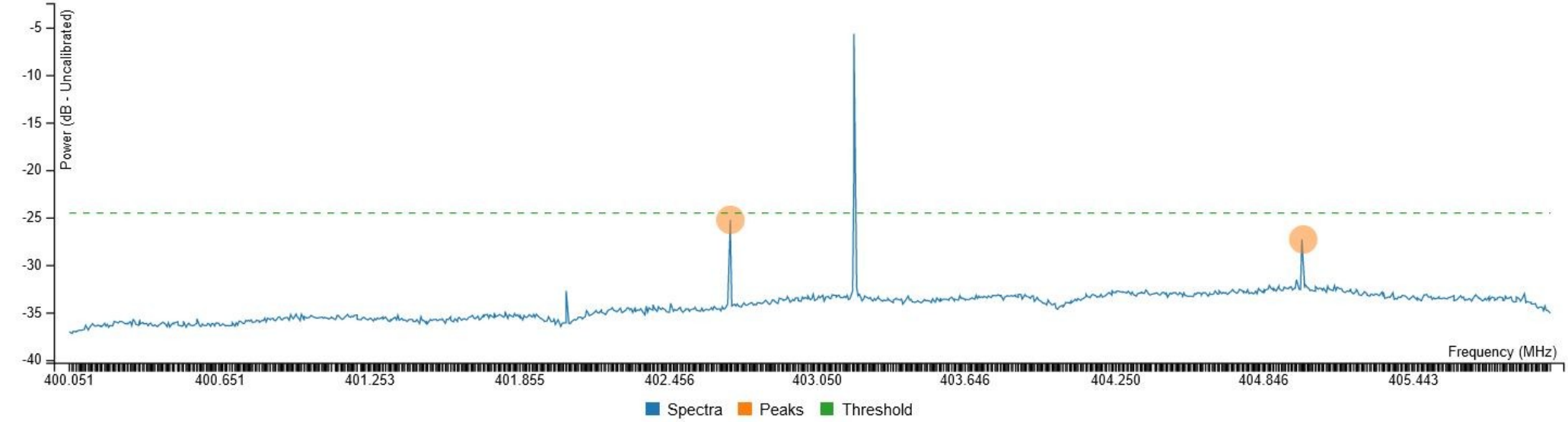


Decimation: 25 Regenerate

```
benoit@benoitG3:~$
benoit@benoitG3:~$ docker logs --tail 50 --follow radiosonde_auto_rx
2023-02-12 17:40:14,950 INFO:Reading configuration file...
2023-02-12 17:40:14,954 WARNING:Config - Web Password not set, disabling web control
2023-02-12 17:40:14,954 WARNING:Please do not use APRS ports which forward data out to the wider APRS-IS network and cause network congestion. Switchin
g to default port of 14590. If you believe this to be in error, please raise an issue at https://github.com/projecthorus/radiosonde_auto_rx/issues
2023-02-12 17:40:17,822 INFO:Config - Tested RTLSDR #0 OK
2023-02-12 17:40:17,826 INFO:Started Flask server on http://0.0.0.0:5005
2023-02-12 17:40:17,828 INFO:Telemetry Logger - Started Telemetry Logger Thread.
2023-02-12 17:40:18,879 INFO:APRS-IS - Connected to APRS-IS server radiosondy.info:14590
2023-02-12 17:40:18,881 INFO:APRS-IS - APRS Uploader Started.
2023-02-12 17:40:18,882 INFO:OziMux - Started OziMux / Payload Summary Exporter
2023-02-12 17:40:18,883 INFO:Sondehub Uploader - Started Sondehub Uploader Thread.
2023-02-12 17:40:19,050 INFO:Version - Local Version: 1.6.0 - Up to date!
2023-02-12 17:40:19,050 INFO:Task Manager - SDR #0 has been allocated to Scanner.
2023-02-12 17:40:19,515 INFO:Sondehub Uploader - Uploaded station information to Sondehub.
The WebSocket transport is not available, you must install a WebSocket server that is compatible with your async mode to enable it. See the documentati
on for details. (further occurrences of this error will be logged with level INFO)
2023-02-12 17:40:21,166 ERROR:The WebSocket transport is not available, you must install a WebSocket server that is compatible with your async mode to
enable it. See the documentation for details. (further occurrences of this error will be logged with level INFO)
2023-02-12 17:40:21,201 INFO:Flask - New Web Client connected!
2023-02-12 17:40:21,520 INFO:Scanner (RTLSDR 0) - Starting Scanner Thread
2023-02-12 17:40:21,523 INFO:Scanner (RTLSDR 0) - Running frequency scan.
2023-02-12 17:40:21,549 INFO:Flask - New Web Client connected!
2023-02-12 17:40:42,062 INFO:Scanner (RTLSDR 0) - Detected peaks on 2 frequencies (MHz): [402.7 405. ]
2023-02-12 17:40:45,544 INFO:Task Manager - Detected new RS41 sonde on 402.700 MHz!
2023-02-12 17:40:45,546 INFO:Halting Scanner to decode detected radiosonde.
2023-02-12 17:40:45,547 INFO:Scanner (RTLSDR 0) - Waiting for current scan to finish...
2023-02-12 17:41:01,485 INFO:Scanner (RTLSDR 0) - Scanner Thread Closed.
2023-02-12 17:41:01,487 INFO:Task Manager - SDR #0 has been allocated to Decoder (RS41, 402.700 MHz).
2023-02-12 17:41:04,263 INFO:Decoder (RTLSDR 0) RS41 402.700 - Using fsk_demod decoder chain.
2023-02-12 17:41:04,292 INFO:Decoder (RTLSDR 0) RS41 402.700 - Starting decoder subprocess.
2023-02-12 17:41:09,391 INFO:Telemetry Logger - Opening new log file: /opt/auto_rx/log/20230212-174109_T3010550_RS41_402700_sonde.log
2023-02-12 17:41:18,918 INFO:APRS-IS - Uploaded to APRS-IS: ON7IO-17>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-17:;T3010550 *174132h4935.14N/00710.51EO148/026/A
=051253 Clb=5.1m/s t=-273.0C h=-1.0% p=-1.0hPa 402.700 MHz Type=RS41 ser=T3010550 Radiosonde !w3u!
2023-02-12 17:41:20,077 INFO:Sondehub Uploader - Uploaded 4 telemetry packets to Sondehub in 0.5 seconds.
2023-02-12 17:41:35,553 INFO:Sondehub Uploader - Uploaded 8 telemetry packets to Sondehub in 0.5 seconds.
2023-02-12 17:41:49,987 INFO:APRS-IS - Uploaded to APRS-IS: ON7IO-17>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-17:;T3010550 *174205h4934.95N/00710.68EO149/020/A
=051745 Clb=4.7m/s t=-67.5C h=-1.0% p=-1.0hPa 402.700 MHz Type=RS41 ser=T3010550 Radiosonde !wB]!
2023-02-12 17:41:51,008 INFO:Sondehub Uploader - Uploaded 4 telemetry packets to Sondehub in 0.4 seconds.
2023-02-12 17:42:06,497 INFO:Sondehub Uploader - Uploaded 5 telemetry packets to Sondehub in 0.5 seconds.
2023-02-12 17:42:21,057 INFO:APRS-IS - Uploaded to APRS-IS: ON7IO-17>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-17:;T3010550 *174235h4934.78N/00710.81EO142/021/A
=052195 Clb=5.4m/s t=-67.1C h=-1.0% p=-1.0hPa 402.700 MHz Type=RS41 ser=T3010550 Radiosonde !wT>!
2023-02-12 17:42:22,011 INFO:Sondehub Uploader - Uploaded 9 telemetry packets to Sondehub in 0.5 seconds.
2023-02-12 17:42:37,460 INFO:Sondehub Uploader - Uploaded 5 telemetry packets to Sondehub in 0.4 seconds.
```

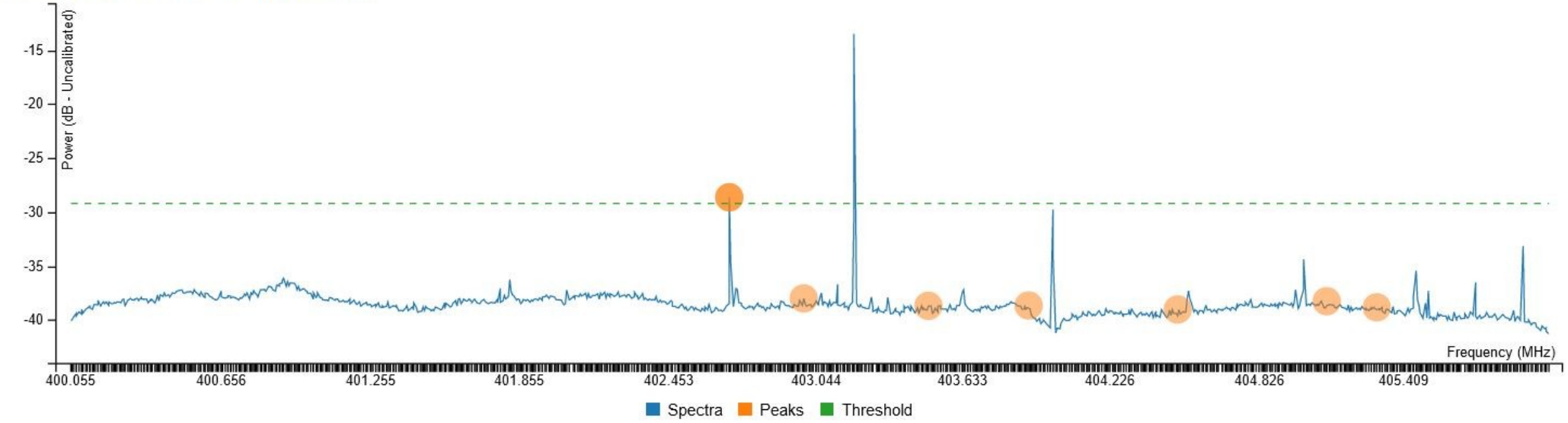
Scan Results:

Latest Scan: 2023-02-12 17:40:42 UTC



Scan Results:

Latest Scan: 2023-02-12 18:08:55 UTC



2023-02-15 08:11:35 UTC – INFO
Scanner (RTLSDR 00000002) - Running frequency scan.

2023-02-15 08:11:34 UTC – WARNING
Payload ID DFM-xxxxxxxx is invalid. Note: DFM sondes may take a while to get an ID.

2023-02-15 08:11:33 UTC – WARNING
Payload ID DFM-xxxxxxxx is invalid. Note: DFM sondes may take a while to get an ID.

2023-02-15 08:11:29 UTC – INFO
Task Manager - Detected DFM sonde on 403.245 MHz, but this is within 15 kHz of an already running decoder. (This limit can be set using the 'decoder_spacing_limit' advanced config option.)

2023-02-15 08:11:29 UTC – INFO
Task Manager - Detected new DFM sonde on 403.245 MHz!

2023-02-15 08:11:27 UTC – INFO
Decoder (RTLSDR 00000003) DFM 403.246 - Starting decoder subprocess.

radiosonde autorx

Log

2023-02-15 07:28:16 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-15 07:27:52 UTC – INFO
Scanner (RTLSDR 0) - Detected peaks on 2 frequencies (MHz): [402.7 405.]

2023-02-15 07:27:31 UTC – INFO
Scanner (RTLSDR 0) - Running frequency scan.

2023-02-15 07:27:21 UTC – INFO
RTLSDR - Attempting to reset: Bus: 1 Device: 6

2023-02-15 07:27:20 UTC – WARNING
Scanner (RTLSDR 0) - SDR produced no output... resetting and retrying.

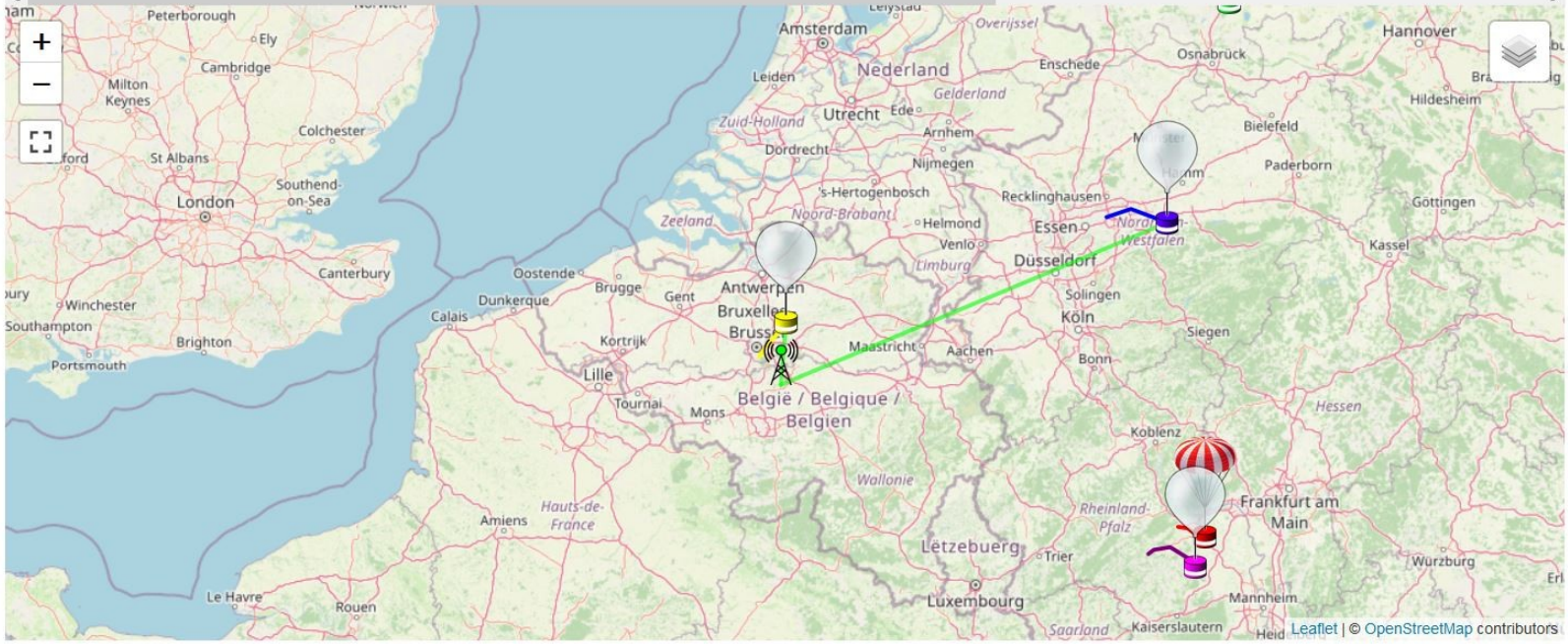
2023-02-15 07:27:20 UTC – CRITICAL
Scanner (RTLSDR 0) - rtl_power reported error: Found 1 device(s): 0: Realtek, RTL2838UHIDIR, SN: 00000004 Using device 0: Generic RTL2832U OEM Number of frequency hops: 3 Dongle bandwidth: 2644444Hz Downsampling by: 1x Cropping by: 25.00% Total FFT bins: 12288 Logged FFT bins: 9216 FFT bin size: 645.62Hz Buffer size: 16384 bytes (3.10ms) Reporting every 20 seconds Found Rafael Micro R820T tuner Tuner gain set to automatic. Exact sample rate is: 2644444.138932 Hz [R82XX] PLL not locked! Signal caught, finishing scan pass. Killed

☰ Radiosonde Auto-RX 1.6.0

Station: ON7IO-15 / ON7IO-15

Current Task: SDR #00000002: Decoding (403.500 MHz) SDR #00000003: Decoding (405.300 MHz)

SDR	Age	Type	Freq (MHz)	ID	Time	Frame	Latitude	Longitude	Alt (m)	Vel (kph)	Asc (m/s)	Temp
00000002	0 s	RS41-SGP-...	403.500 MHz	T5050185	2023-02-15T12:00:26.000Z	4543	**50.97444**	**4.58765**	9527.1	79.1	5.3	-51.9
	old	RS41-SGP	402.700 MHz	T3020773	2023-02-15T11:56:51.000Z	5040	**49.70550**	**7.92473**	20488.7	70.8	4.8	-69.9
00000003	7 s	RS41-SGP	405.300 MHz	U3360440	2023-02-15T12:00:19.001Z	5766	**51.48284**	**7.68663**	19427.9	69.9	4.8	-273
	old	RS41	405.100 MHz	T2940588	2023-02-15T09:03:46.001Z	5652	**52.58089**	**8.19103**	20646.7	0.0	0.0	-273
	old	DFM09	403.246 MHz	18081388	2023-02-15T08:13:31.000Z	1360484011	**49.85661**	**8.00104**	13516.0	37.1	-8.8	-273



Log

2023-02-15 12:00:00 UTC – INFO

*APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T5050185 *120016h5058.38N/00435.13EO052/051/A=031085 Clb=7.6m/s t=-51.6C h=57.3% p=290.8hPa 403.500 MHz Type=RS41-SGP-Ozone ser=T5050185 Radiosonde !wbR!*

2023-02-15 12:00:00 UTC – INFO

*APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;U3360440 *120015h5128.99N/00741.14EO123/037/A=063677 Clb=4.8m/s t=-273.0C h=-1.0% p=-1.0hPa 405.300 MHz Type=RS41-SGP ser=U3360440 Radiosonde !w99!*

2023-02-15 11:59:47 UTC – INFO

Sondehub Uploader - Uploaded 40 telemetry packets to Sondehub in 0.6 seconds.

2023-02-15 11:59:29 UTC – INFO

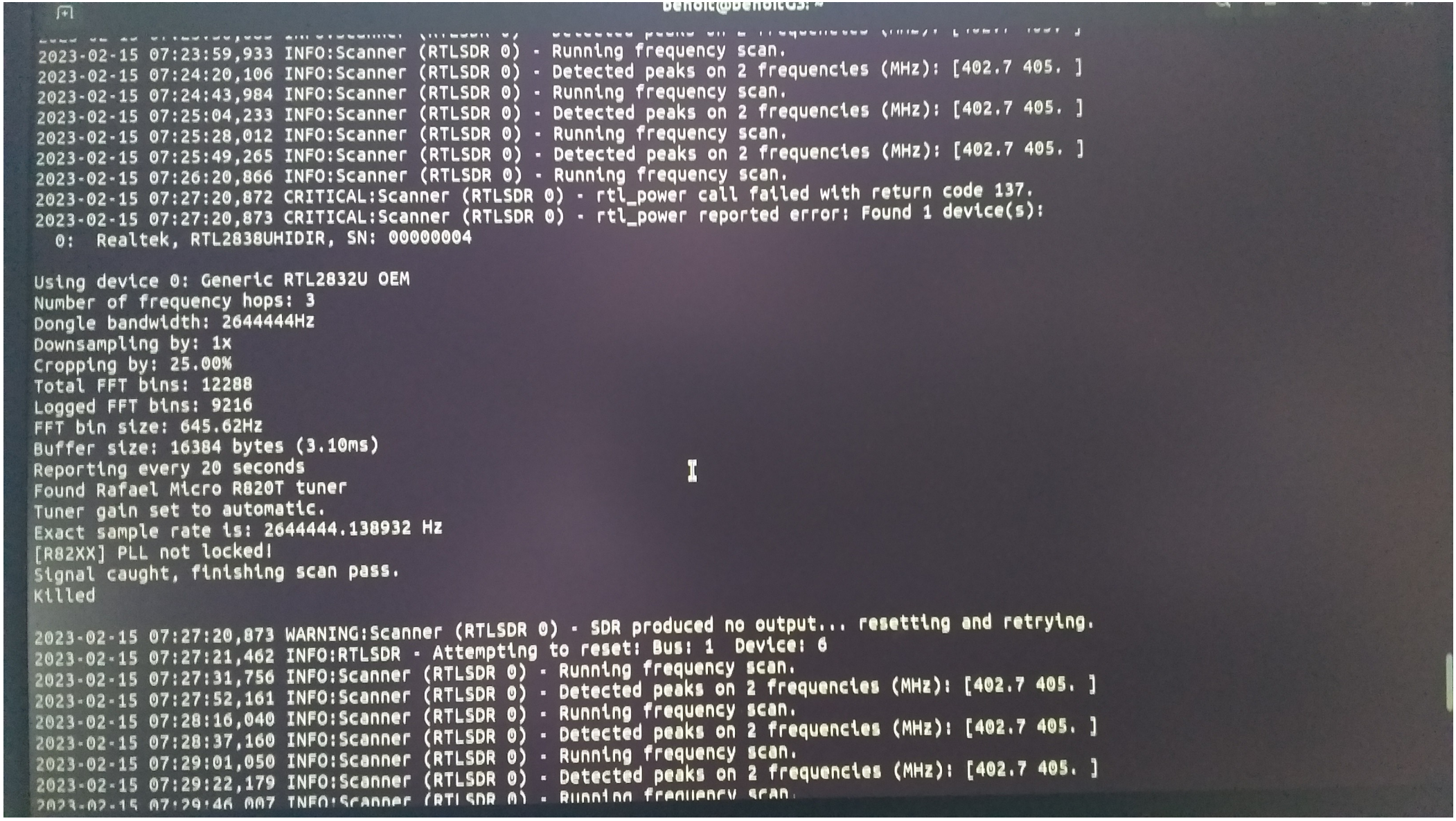
*APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T5050185 *115945h5058.09N/00434.81EO039/044/A=030531 Clb=5.0m/s t=-50.1C h=64.1% p=298.5hPa 403.500 MHz Type=RS41-SGP-Ozone ser=T5050185 Radiosonde !wNo!*

2023-02-15 11:59:29 UTC – INFO

*APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;U3360440 *115943h5129.14N/00740.72EO124*

Erreurs diverses en Python

```
auto_rx[408]: 2022-05-11 03:14:52,718 INFO:APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T1920394
*011507h5029.74N/01111.43EO228/021/A=112140 Clb=2.5m/s t=-32.9C h=-1.0% p=6.8hPa 402.300 MHz Type=RS41-SGP ser=T1920394 Radiosonde
!wDs!
auto_rx[408]: 2022-05-11 03:15:15,093 INFO:Sondehub Uploader - Uploaded 7 telemetry packets to Sondehub in 1.1 seconds.
auto_rx[408]: 2022-05-11 03:15:23,796 INFO:APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T1920394
*011534h5029.79N/01111.33EO254/013/A=112493 Clb=2.0m/s t=-32.5C h=-1.0% p=6.7hPa 402.300 MHz Type=RS41-SGP ser=T1920394 Radiosonde
!w1f!
auto_rx[408]: 2022-05-11 03:15:45,715 INFO:Sondehub Uploader - Uploaded 10 telemetry packets to Sondehub in 0.6 seconds.
auto_rx[408]: 2022-05-11 03:15:52,857 ERROR:Error on request:
auto_rx[408]: Traceback (most recent call last):
auto_rx[408]:   File "/usr/lib/python3/dist-packages/werkzeug/serving.py", line 270, in run_wsgi
auto_rx[408]:     execute(self.server.app)
auto_rx[408]:   File "/usr/lib/python3/dist-packages/werkzeug/serving.py", line 258, in execute
auto_rx[408]:     application_iter = app(environ, start_response)
auto_rx[408]:   File "/usr/lib/python3/dist-packages/flask/app.py", line 2309, in __call__
auto_rx[408]:     return self.wsgi_app(environ, start_response)
auto_rx[408]:   File "/usr/local/lib/python3.7/dist-packages/flask_socketio/__init__.py", line 44, in __call__
auto_rx[408]:     start_response)
auto_rx[408]:   File "/usr/local/lib/python3.7/dist-packages/engineio/middleware.py", line 63, in __call__
auto_rx[408]:     return self.engineio_app.handle_request(environ, start_response)
auto_rx[408]:   File "/usr/local/lib/python3.7/dist-packages/socketio/server.py", line 597, in handle_request
auto_rx[408]:     return self.eio.handle_request(environ, start_response)
auto_rx[408]:   File "/usr/local/lib/python3.7/dist-packages/engineio/server.py", line 409, in handle_request
auto_rx[408]:     socket = self._get_socket(sid)
auto_rx[408]:   File "/usr/local/lib/python3.7/dist-packages/engineio/server.py", line 638, in _get_socket
auto_rx[408]:     raise KeyError('Session is disconnected')
auto_rx[408]: KeyError: 'Session is disconnected'
auto_rx[408]: 2022-05-11 03:15:53,248 INFO:Flask - New Web Client connected!
auto_rx[408]: 2022-05-11 03:15:54,890 INFO:APRS-IS - Uploaded to APRS-IS: ON7IO-15>APRARX,SONDEGATE,TCPIP,qAR,ON7IO-15:;T1920394
*011609h5029.87N/01111.16EO340/021/A=112944 Clb=2.3m/s t=-32.0C h=-1.0% p=6.6hPa 402.300 MHz Type=RS41-SGP ser=T1920394 Radiosonde
!wv!!
auto_rx[408]: 2022-05-11 03:16:16,528 INFO:Sondehub Uploader - Uploaded 5 telemetry packets to Sondehub in 0.8 seconds.
```


2023-02-15 07:23:59,933 INFO:Scanner (RTLSDR 0) - Running frequency scan.
2023-02-15 07:24:20,106 INFO:Scanner (RTLSDR 0) - Detected peaks on 2 frequencies (MHz): [402.7 405.]
2023-02-15 07:24:43,984 INFO:Scanner (RTLSDR 0) - Running frequency scan.
2023-02-15 07:25:04,233 INFO:Scanner (RTLSDR 0) - Detected peaks on 2 frequencies (MHz): [402.7 405.]
2023-02-15 07:25:28,012 INFO:Scanner (RTLSDR 0) - Running frequency scan.
2023-02-15 07:25:49,265 INFO:Scanner (RTLSDR 0) - Detected peaks on 2 frequencies (MHz): [402.7 405.]
2023-02-15 07:26:20,866 INFO:Scanner (RTLSDR 0) - Running frequency scan.
2023-02-15 07:27:20,872 CRITICAL:Scanner (RTLSDR 0) - rtl_power call failed with return code 137.
2023-02-15 07:27:20,873 CRITICAL:Scanner (RTLSDR 0) - rtl_power reported error: Found 1 device(s):
0: Realtek, RTL2838UHIDIR, SN: 00000004
Using device 0: Generic RTL2832U OEM
Number of frequency hops: 3
Dongle bandwidth: 2644444Hz
Downsampling by: 1x
Cropping by: 25.00%
Total FFT bins: 12288
Logged FFT bins: 9216
FFT bin size: 645.62Hz
Buffer size: 16384 bytes (3.10ms)
Reporting every 20 seconds
Found Rafael Micro R820T tuner
Tuner gain set to automatic.
Exact sample rate is: 2644444.138932 Hz
[R82XX] PLL not locked!
Signal caught, finishing scan pass.
Killed
2023-02-15 07:27:20,873 WARNING:Scanner (RTLSDR 0) - SDR produced no output... resetting and retrying.
2023-02-15 07:27:21,462 INFO:RTLSDR - Attempting to reset: Bus: 1 Device: 6
2023-02-15 07:27:31,756 INFO:Scanner (RTLSDR 0) - Running frequency scan.
2023-02-15 07:27:52,161 INFO:Scanner (RTLSDR 0) - Detected peaks on 2 frequencies (MHz): [402.7 405.]
2023-02-15 07:28:16,040 INFO:Scanner (RTLSDR 0) - Running frequency scan.
2023-02-15 07:28:37,160 INFO:Scanner (RTLSDR 0) - Detected peaks on 2 frequencies (MHz): [402.7 405.]
2023-02-15 07:29:01,050 INFO:Scanner (RTLSDR 0) - Running frequency scan.
2023-02-15 07:29:22,179 INFO:Scanner (RTLSDR 0) - Detected peaks on 2 frequencies (MHz): [402.7 405.]

RS41 SGM militaire codée !

```
auto_rx[408]: 2022-05-12 01:19:22,149 INFO:Halting Scanner to decode detected radiosonde.
auto_rx[408]: 2022-05-12 01:19:22,150 INFO:Scanner #0 - Waiting for current scan to finish...
auto_rx[408]: 2022-05-12 19:22:16,483 INFO:Scanner #0 - Scanner Thread Closed.
auto_rx[408]: 2022-05-12 19:22:16,485 INFO:Task Manager - SDR #0 has been allocated to Decoder (RS41, 405.000 MHz).
auto_rx[408]: 2022-05-12 19:22:19,677 INFO:Decoder #0 RS41 405.000 - Using fsk_demod decoder chain.
auto_rx[408]: 2022-05-12 19:22:19,760 INFO:Decoder #0 RS41 405.000 - Starting decoder subprocess.
auto_rx[408]: 2022-05-12 19:22:23,379 ERROR:Decoder #0 RS41 405.000 - Radiosonde R3751370 has encrypted telemetry (Possible
encrypted RS41-SGM)! We cannot decode this, closing decoder.
auto_rx[408]: 2022-05-12 19:22:23,684 INFO:Task Manager - Adding temporary block for frequency 405.000 MHz
auto_rx[408]: 2022-05-12 19:22:23,685 INFO:Task Manager - SDR #0 has been allocated to Scanner.
auto_rx[408]: 2022-05-12 19:22:23,686 INFO:Scanner #0 - Temporary blocks in place for frequencies: [405000000.0]
auto_rx[408]: 2022-05-12 19:22:24,482 INFO:Decoder #0 RS41 405.000 - Closed decoder subprocess.
auto_rx[408]: 2022-05-12 19:22:26,885 INFO:Scanner #0 - Starting Scanner Thread
auto_rx[408]: 2022-05-12 19:22:26,891 INFO:Scanner #0 - Running frequency scan.
auto_rx[408]: 2022-05-12 19:22:47,377 INFO:Scanner #0 - Detected peaks on 11 frequencies (MHz): [403.5  403.   402.7  405.3
403.9  405.1  404.5  404.   400.78 401.9
auto_rx[408]:  400.95]
```

Mes stations d’écoute, Raspberry Pi 3, 400 et PC Linux + antennes homemade


NESDr SMArt
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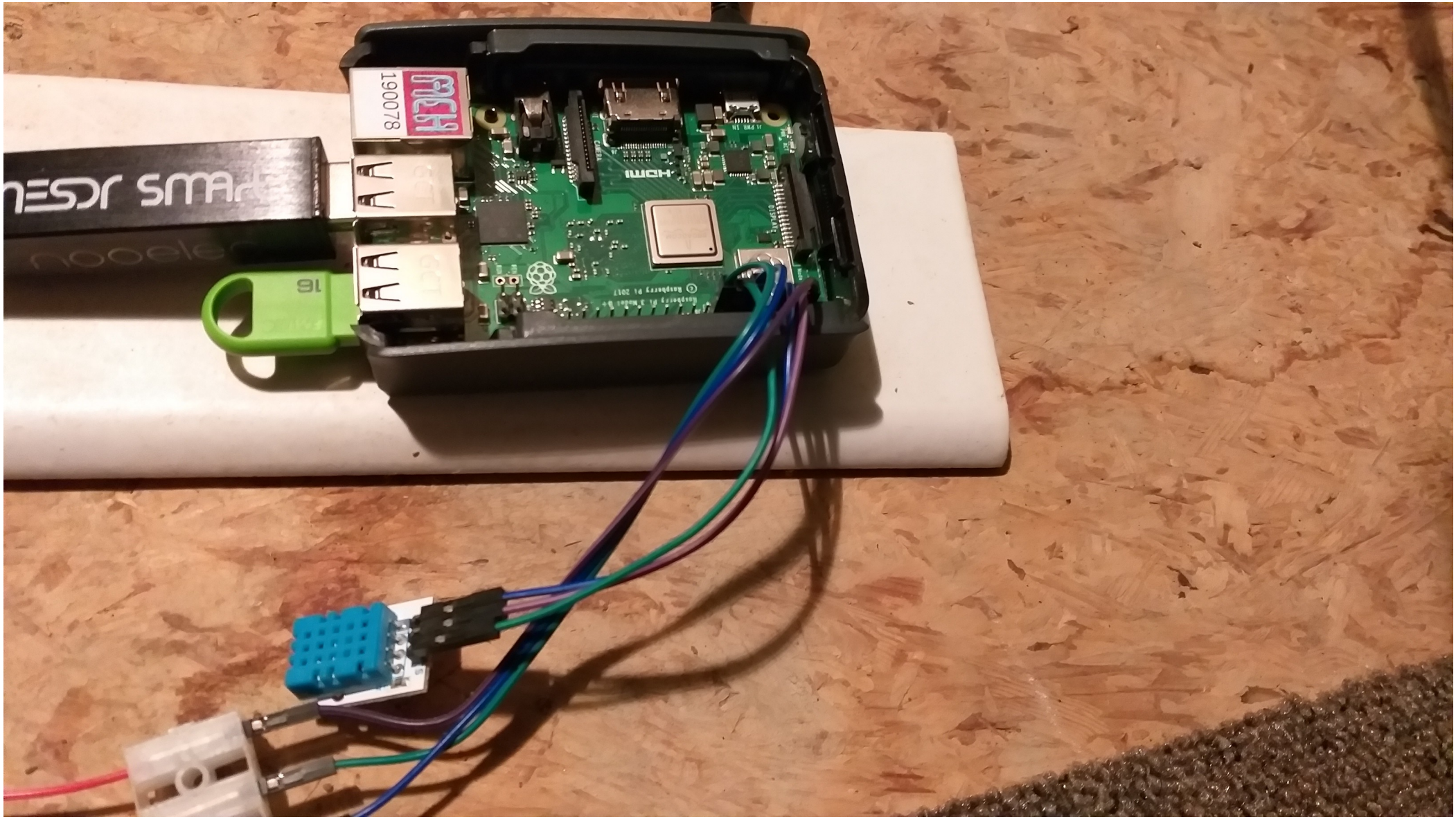
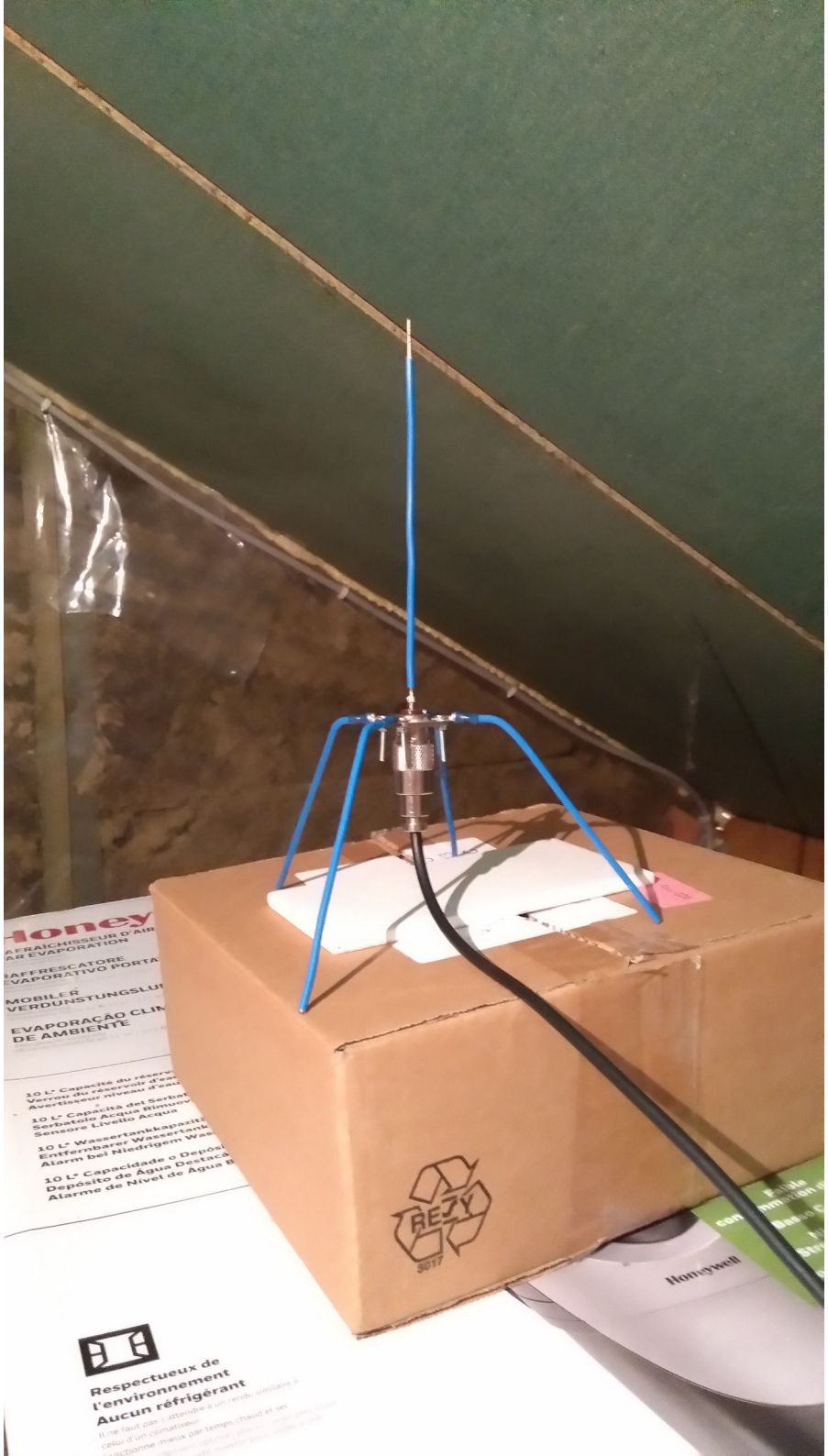
nooelec




Mark
bass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Aucun réfrigérant


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RÉCEPTION
ÉMISSION

OCIÉTÉ DES ÉDITIONS RADIO - PARIS

L'antenne en J.

D'une réalisation fort aisée, l'antenne en J forme, notamment pour les V.H.F., un excellent aérien *à polarisation verticale* (fig. 6 - 15). On peut admettre qu'elle associe une partie rayonnante demi-onde et un transformateur quart d'onde. Les deux tubes inférieurs seront distants de 5 cm au plus.

Dans le cas de la figure 6 - 15*a*, la ligne quart d'onde est fermée par le bas et il suffirait de rechercher, sur sa longueur, deux points offrant une impédance égale à celle de la ligne pour y brancher celle-ci.

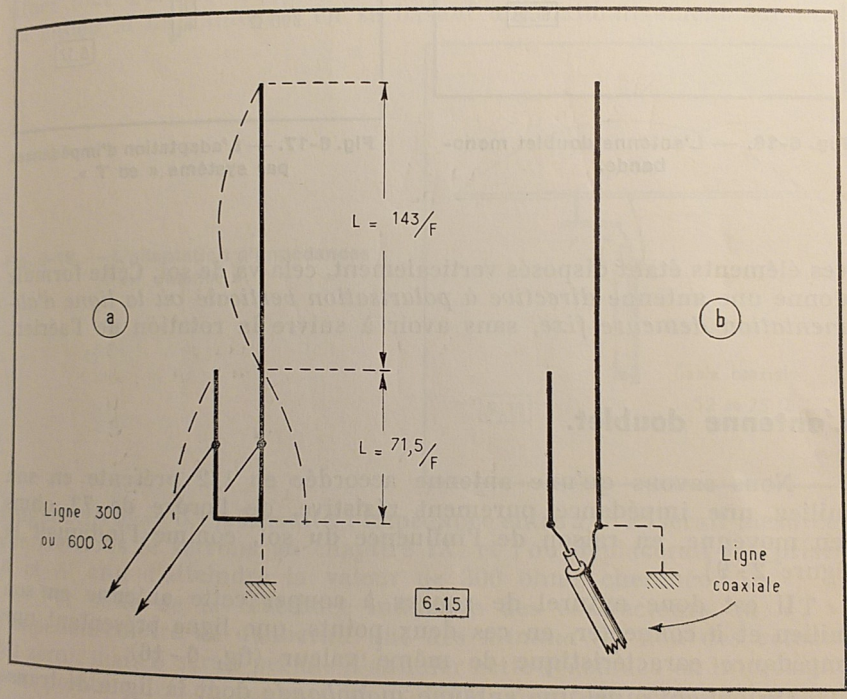
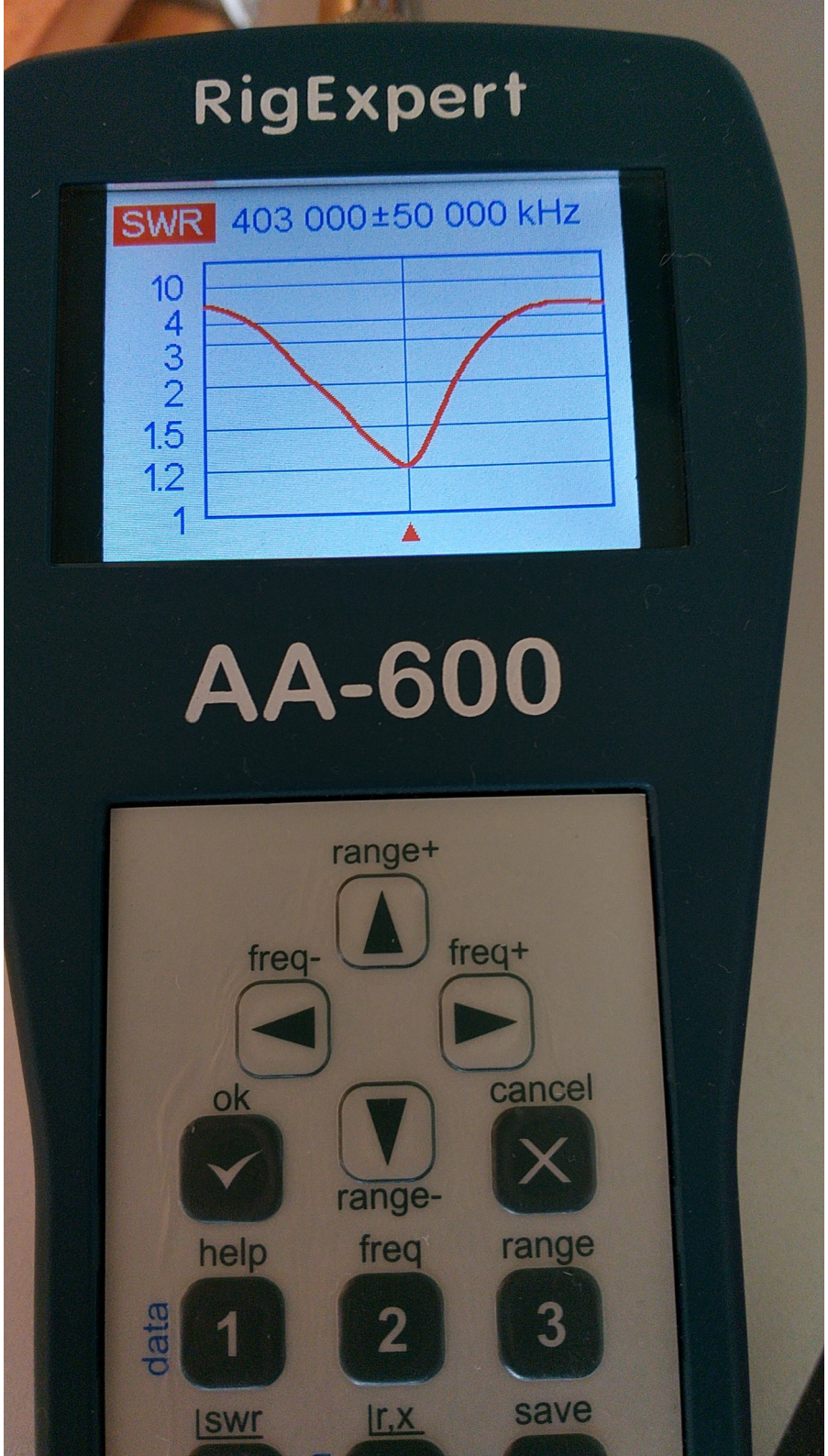


Fig. 6-15. — L'antenne en J.

Mais la base du transformateur quart d'onde peut demeurer ouverte et recevoir un câble coaxial (fig. 6 - 15*b*).

Dans les deux cas, la partie inférieure du tube principal est susceptible d'être reliée à la terre, à titre de protection contre la foudre.

Anticipant quelque peu sur les antennes directives que nous étudierons plus loin, nous ajouterons au passage que la partie demi-onde verticale de cette antenne peut former *l'axe fixe* d'un ensemble d'éléments parasites (réflecteur et directeurs) *tournant autour de lui*


RigExpert
SWR
403 000±50 000 kHz
10
4
3
2
1.5
1.2
1
AA-600
range+
freq-
freq+
ok
cancel
range-
help
freq
range
data
1
2
3
swr
r,x
save

Questions ? Remarques ?

Merci ! on7io@uba.be