TurboWin+ new or updated features in version 4

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2 Vaisala HMP155 sensor interface

3 EMOS interface update

4 Setting TurboWin+ to APR (or APTR)

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1 Email options

1.1] General

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1.1] General

Two settings (address recipient and subject) are always required before you can send observations by TurboWin+ (Maintenance → Email settings). The cc field is new in this version but optional

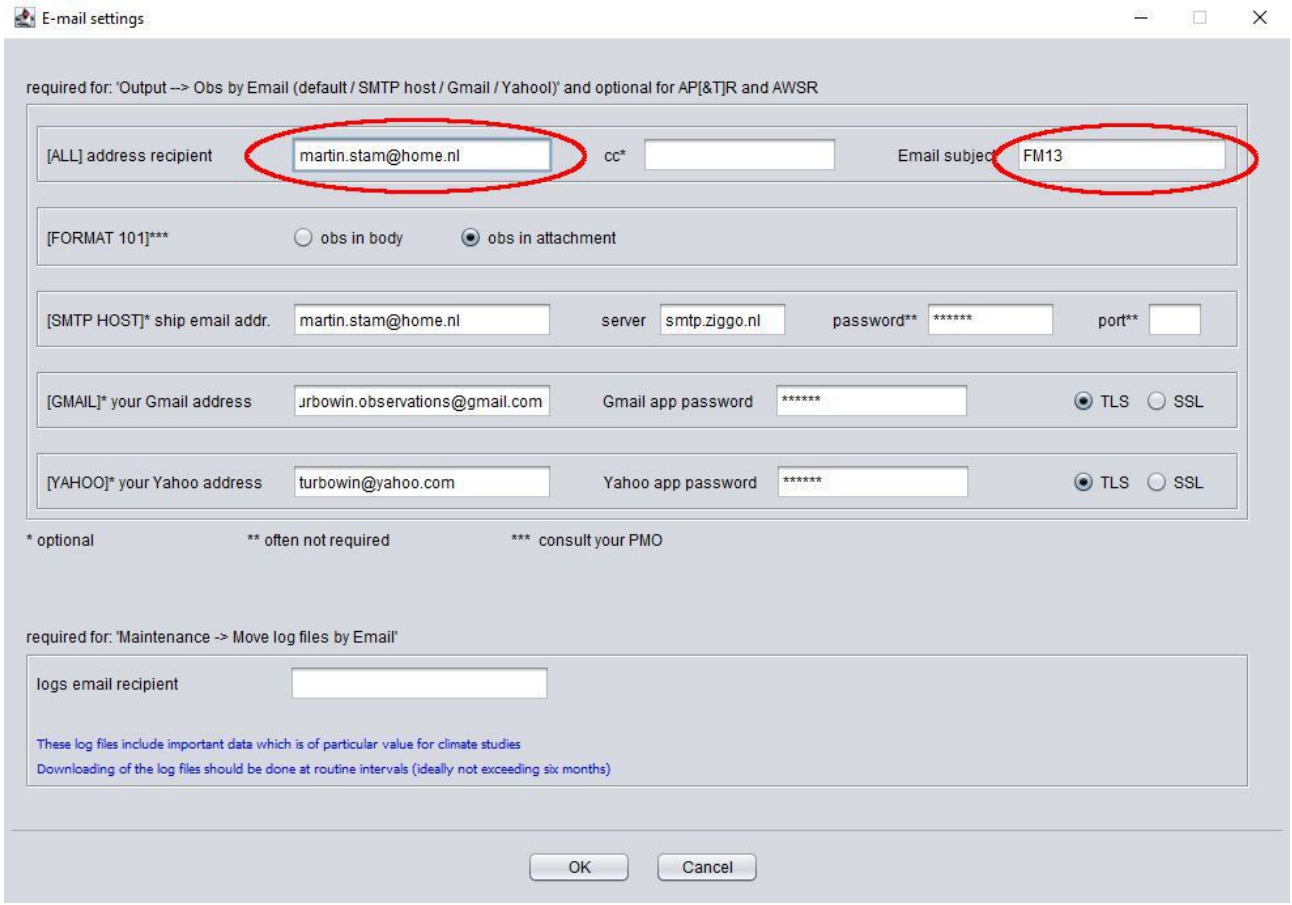

fig 1 Email settings example with required basic data surrounded in red

1.2] Setting up (SMTP) local host for TurboWin+

Sending via local host [Output – Obs by Email (local host)] could be an alternative for sending via the default email app. [Output → Obs by Email(default)]. If sending via local host two settings are required. The first one is one of the email addresses from the ship and the second one is the name of the email server. The name of the email server is not secret but often unknown by the observers. Ask the system administrator for this setting. Many times it will be a simple name like smtp.ziggo.nl (email server of a provider in the Netherlands) or smtp.knmi.nl (email server at KNMI). In many cases the password and port number are already known by the email server because mostly the server and pc are both part of the same local network. So inserting a password and a port number is often not needed here. It is recommended to try first to send an observation without password and port number (less is better) .

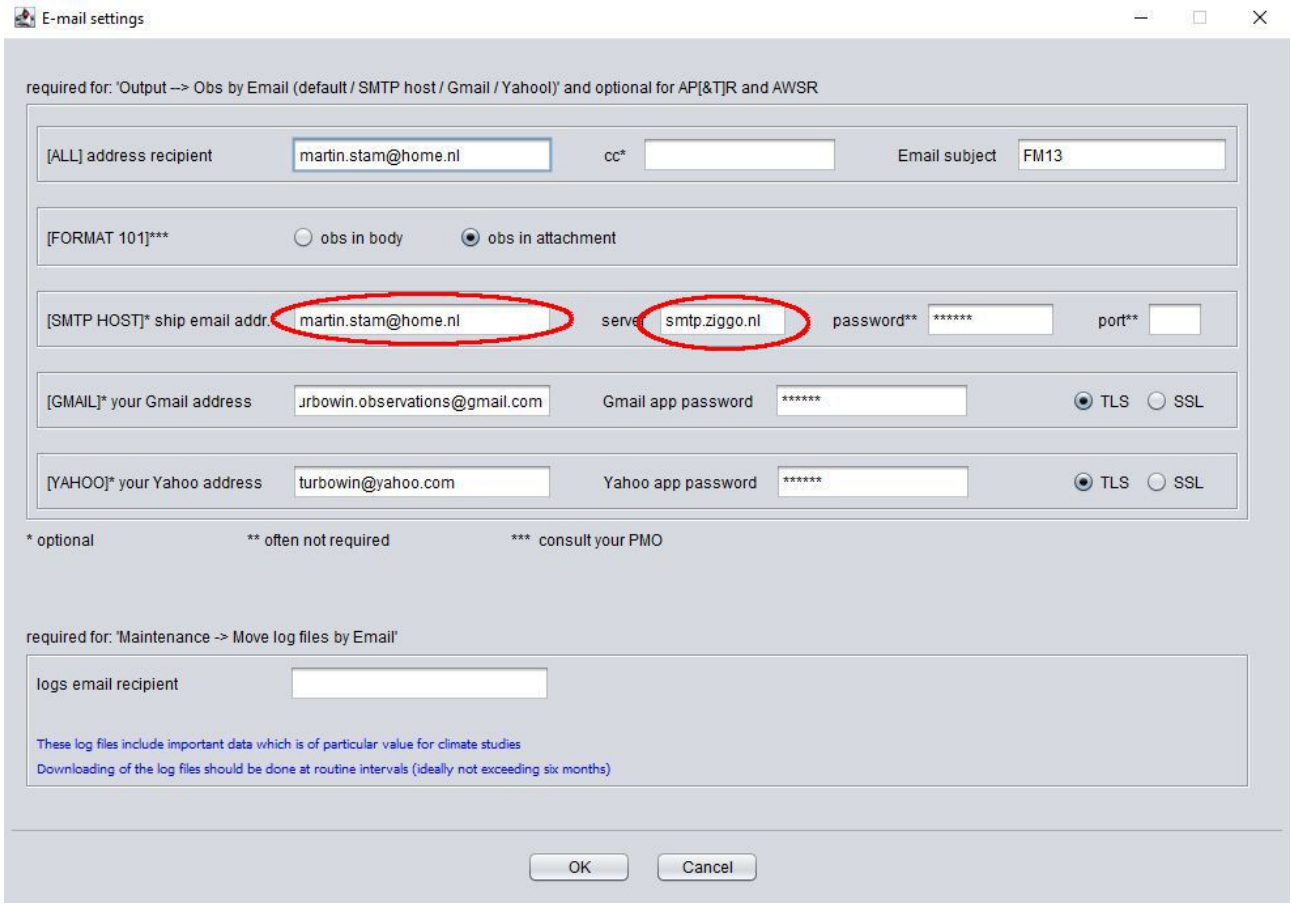

fig 2 Email settings example with required data for sending via local host surrounded in red

1.3] Setting up Gmail for TurboWin+

basically this are the required steps

1. If no account create a new account [https://support.google.com/mail/answer/56256?hl=en]
2. For this account turn on 2-step verification [https://support.google.com/accounts/answer/185839]
3. Generate an app password [e.g. https://www.lifewire.com/get-a-password-to-access-gmail-by-pop-imap-2-1171882] [see note 1 below and fig 3]
4. Insert your Gmail address into the TurboWin+ Email settings form
5. Paste the app password into the app password field in the TurboWin+ Email settings form [see note 2 below and fig 4]
6. Select the security mode (TLS or SSL) in the TurboWin+ Email settings form [see note 3 below and fig 5]

Note 1

The value of an application-specific password is that you can revoke and regenerate a password on a service-by-service basis instead of having to change the master password to your account. If you do need to create a new app-specific password for a program or service, revoke passwords previously set up but no longer used for the same application.

It's best practice to use an app-specific password only for a single service. You are free to generate as many app-specific passwords as you like. [source: https://www.lifewire.com/get-a-password-to-access-gmail-by-pop-imap-2-1171882]

Note 2

Most of the time, you'll only have to enter an app password once per app or device, so don't worry about memorizing it. You can also always generate a new one.

Note 3

TLS uses port 587 and SSL port 465. One or both ports could be initially closed. TLS is recommended. Ask the system administrator

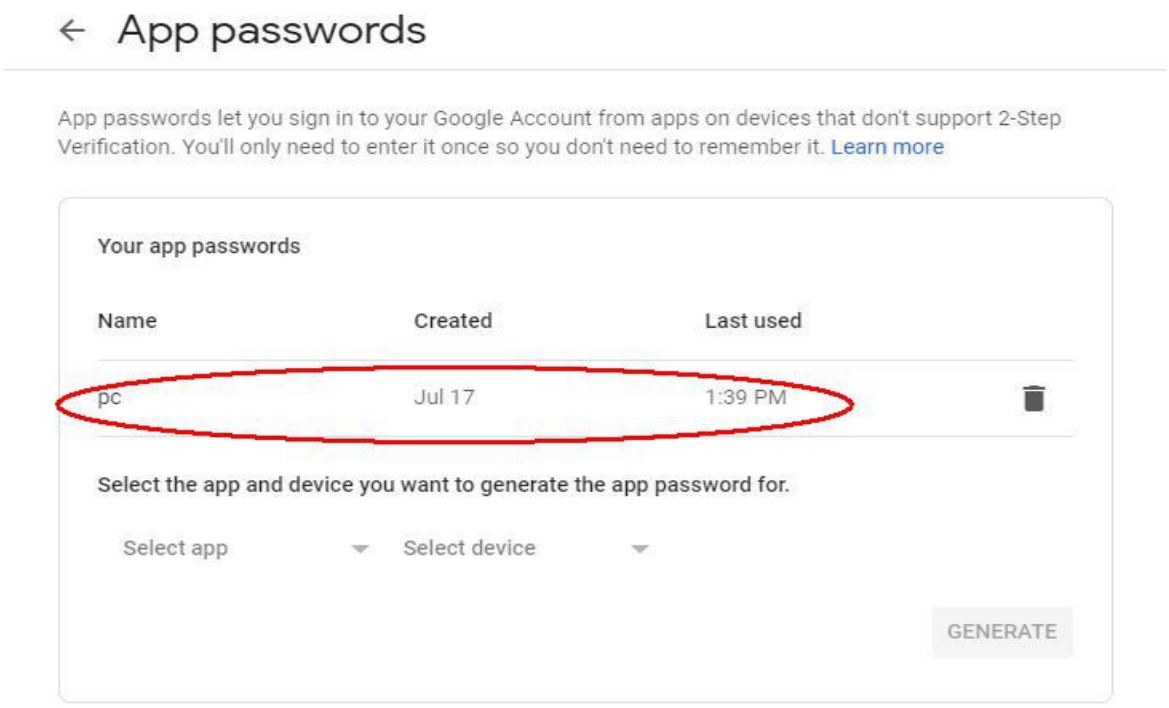

fig 3 View of app passwords on Google account web site for (test)email address turbowin.observations@gmail.com

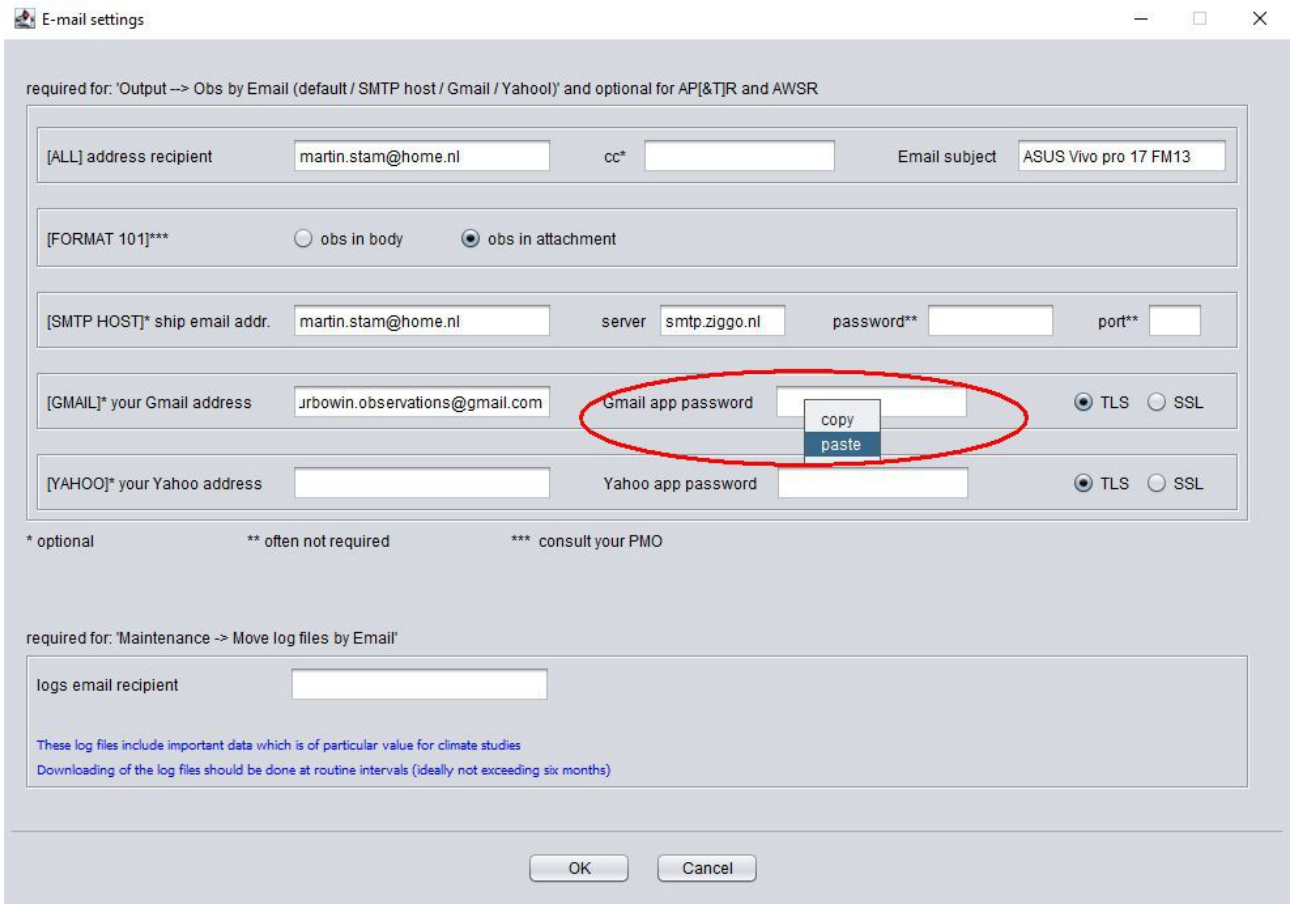

fig 4 setting up Gmail for TurboWin+; paste generated app password by right clicking on the Gmail app password field

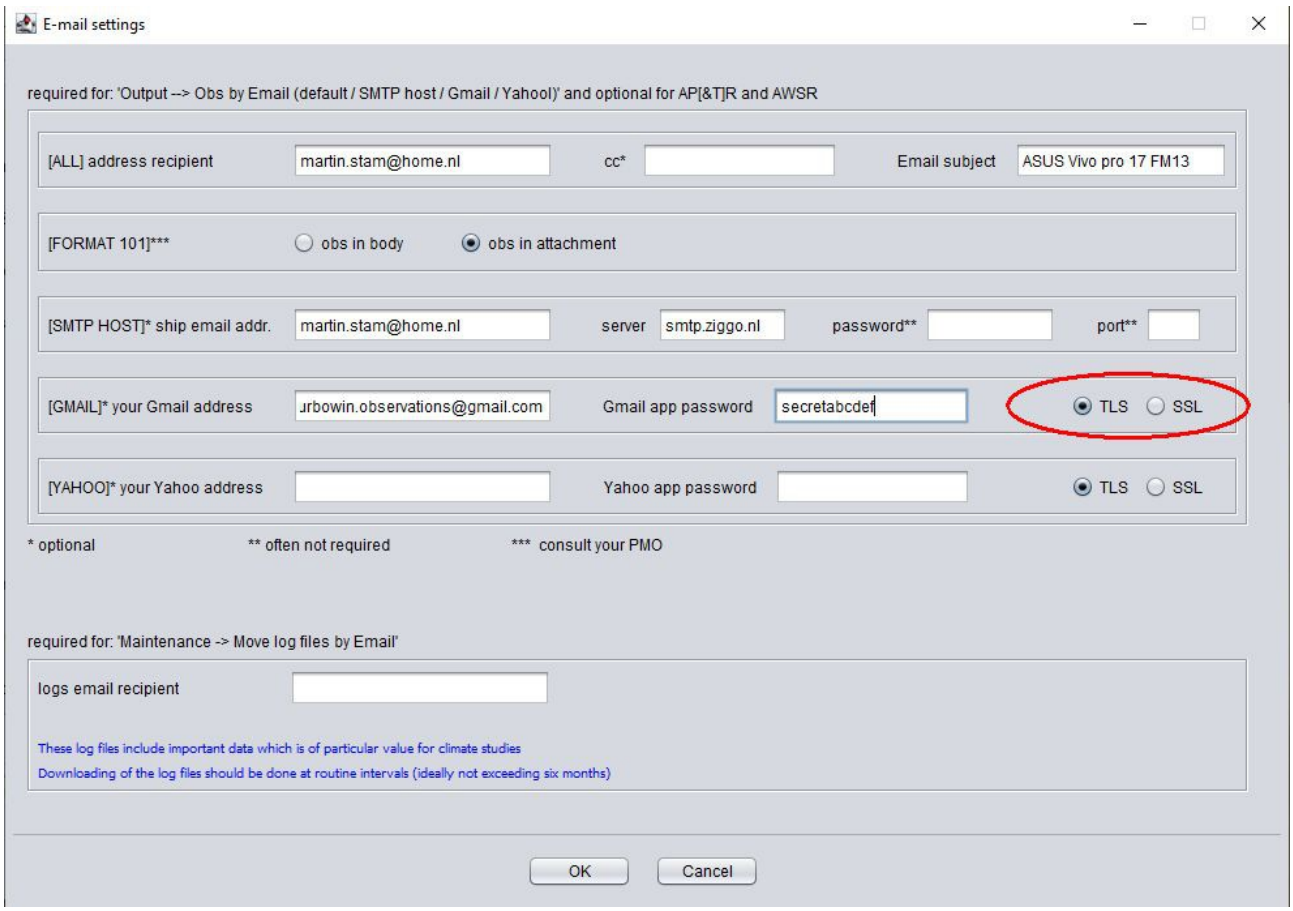

fig 5 setting up Gmail for TurboWin+; select the security mode (TLS or SSL)

1.4] Setting up Yahoo Mail for TurboWin+

basically this are the required steps

1. If no account create a new account [https://login.yahoo.com/account/create?.lang=en-US&.intl=us&.src=yhelp]
2. For this account turn on 2-step verification [https://help.yahoo.com/kb/SLN5013.html]
3. Generate an app password [https://uk.help.yahoo.com/kb/account/generate-third-party-passwords-sln15241.html] [see note 1 below and fig 6 and fig 7]
4. Insert your Yahoo Mail address into the TurboWin+ Email settings form
5. Paste the app password into the app password field in the TurboWin+ Email settings form [see note 2 below and fig 8]
6. Select the security mode (TLS or SSL) in the TurboWin+ Email settings form [see note 3 below and fig 9]

Note 1

The value of an application-specific password is that you can revoke and regenerate a password on a service-by-service basis instead of having to change the master password to your account. If you do need to create a new app-specific password for a program or service, revoke passwords previously set up but no longer used for the same application.

It's best practice to use an app-specific password only for a single service. You are free to generate as many app-specific passwords as you like. [source: https://www.lifewire.com/get-a-password-to-access-gmail-by-pop-imap-2-1171882]

Note 2

Most of the time, you'll only have to enter an app password once per app or device, so don't worry about memorizing it. You can also always generate a new one

Note 3

TLS uses port 587 and SSL port 465. One or both ports could be initially closed. TLS is recommended. Ask the system administrator

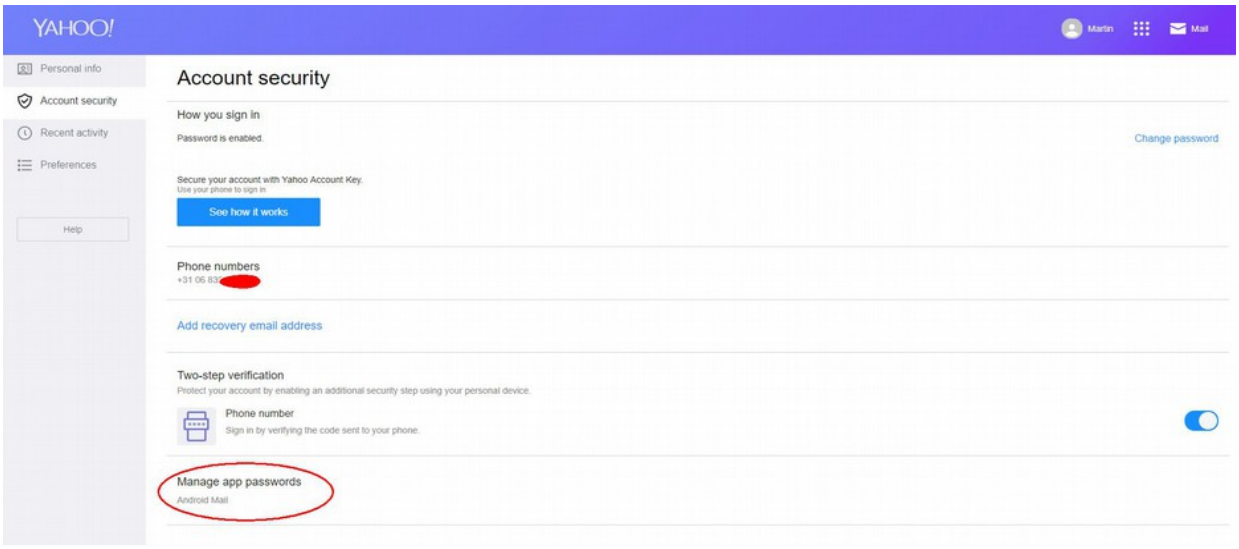

fig 6 setting up Yahoo email for TurboWin+ (Yahoo account web site)

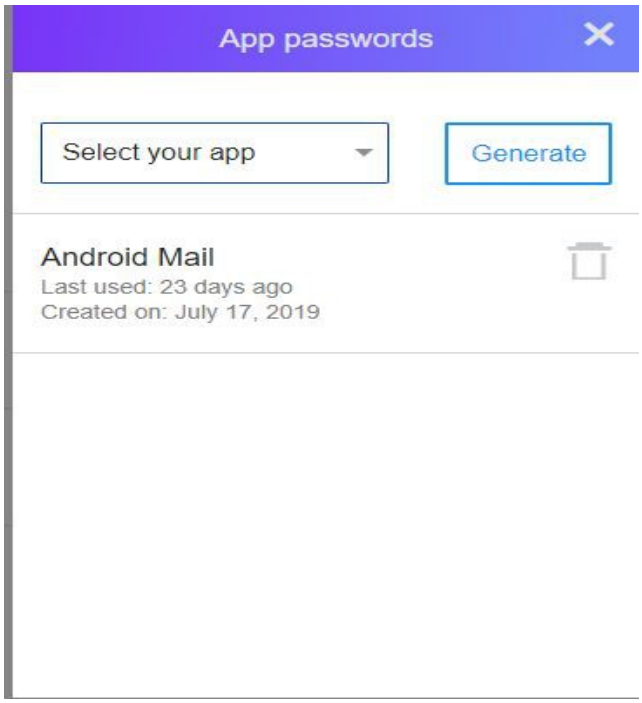

fig 7 View of app passwords on Yahoo account web site for (test)email address turbowin@yahoo.com

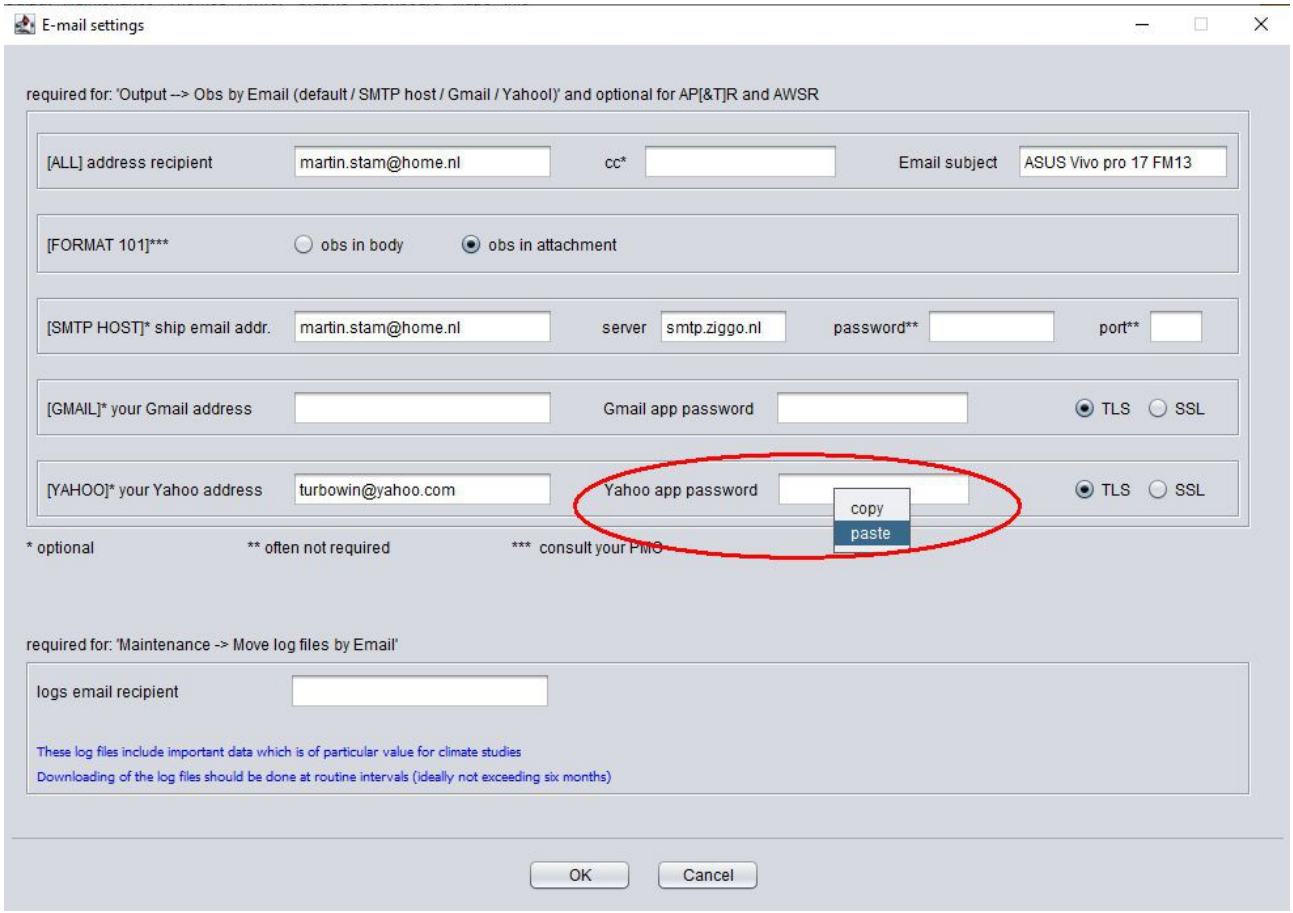

fig 8 setting up Yahoo Mail for TurboWin+; paste generated app password by right clicking on the Yahoo app password field

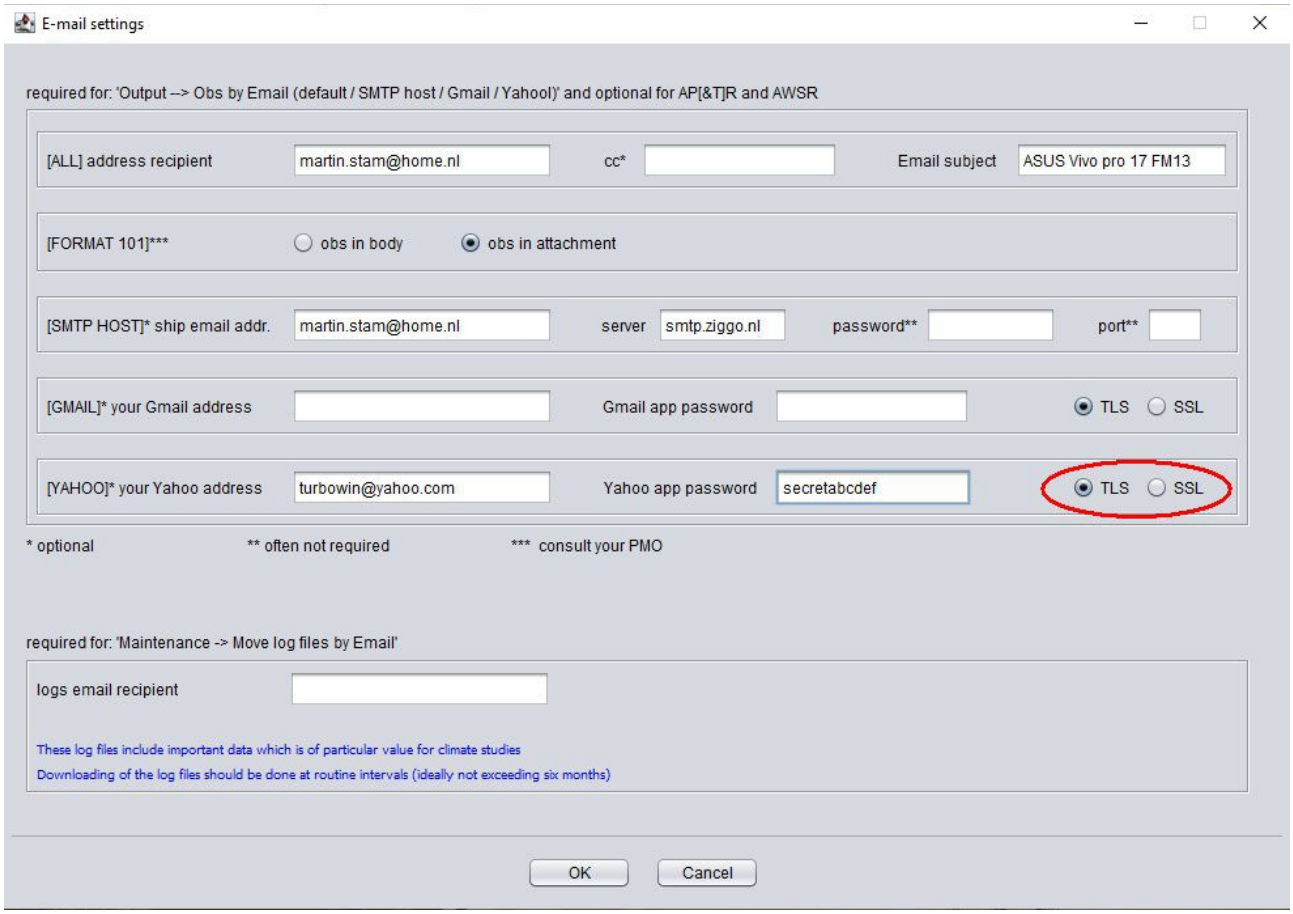

fig 9 setting up Yahoo Mail for TurboWin+; select the security mode (TLS or SSL)

1.5 Sending and Logging

In manual mode: an Email output option (fig 10) will only be available (not grayed out) if the required settings for that specific option are made before in the Email settings form (fig 1).

note

In APR, APTR and AWSR mode all output options are not available (grayed out) by default. If you turn off APR (APTR or AWSR) the appropriate output options will be selectable again. In EUCAWS mode only the output option “Obs to AWS” is available for adding manual observation data

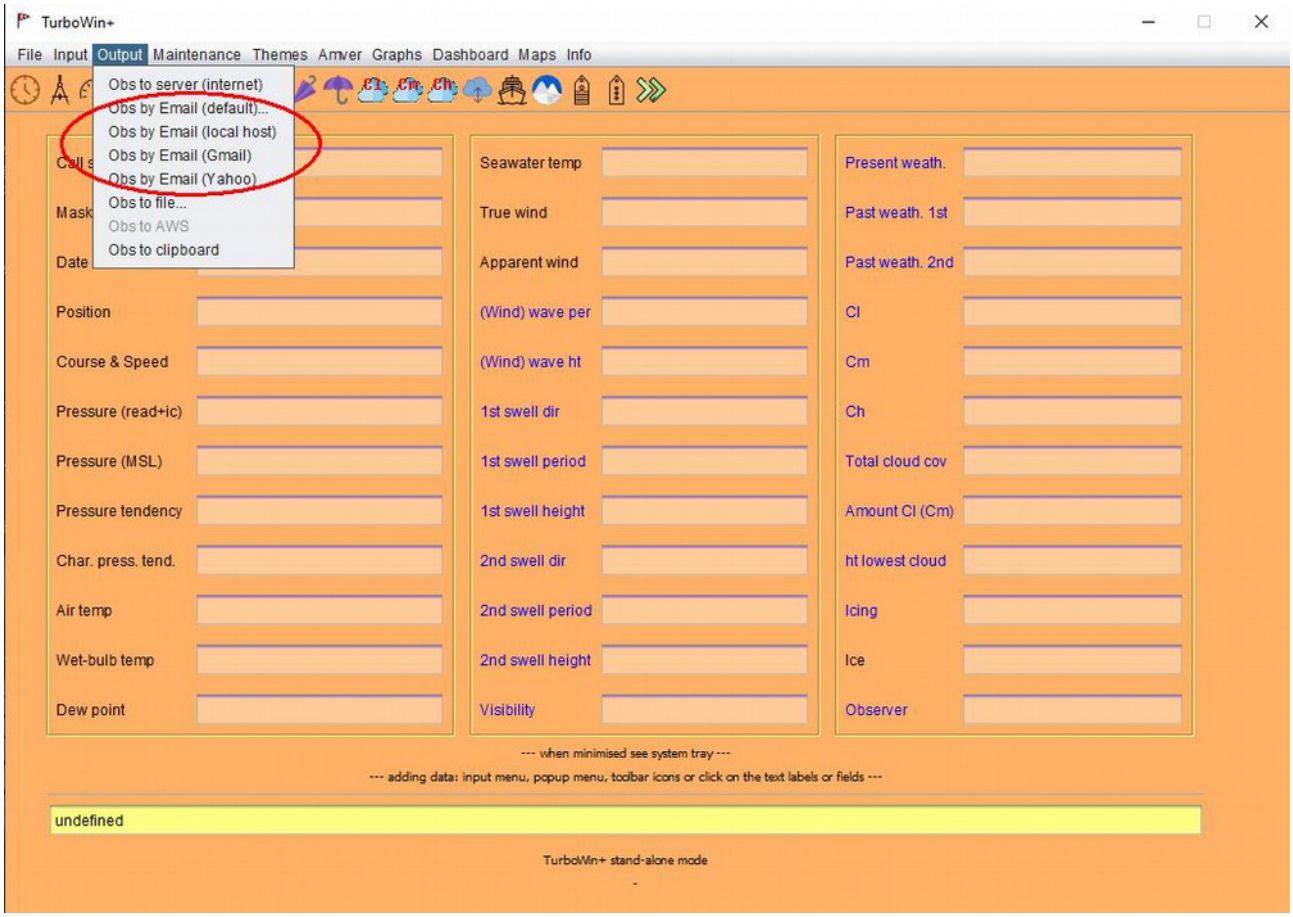

Fig 10 Email output options (surrounded in red); with all email output options available

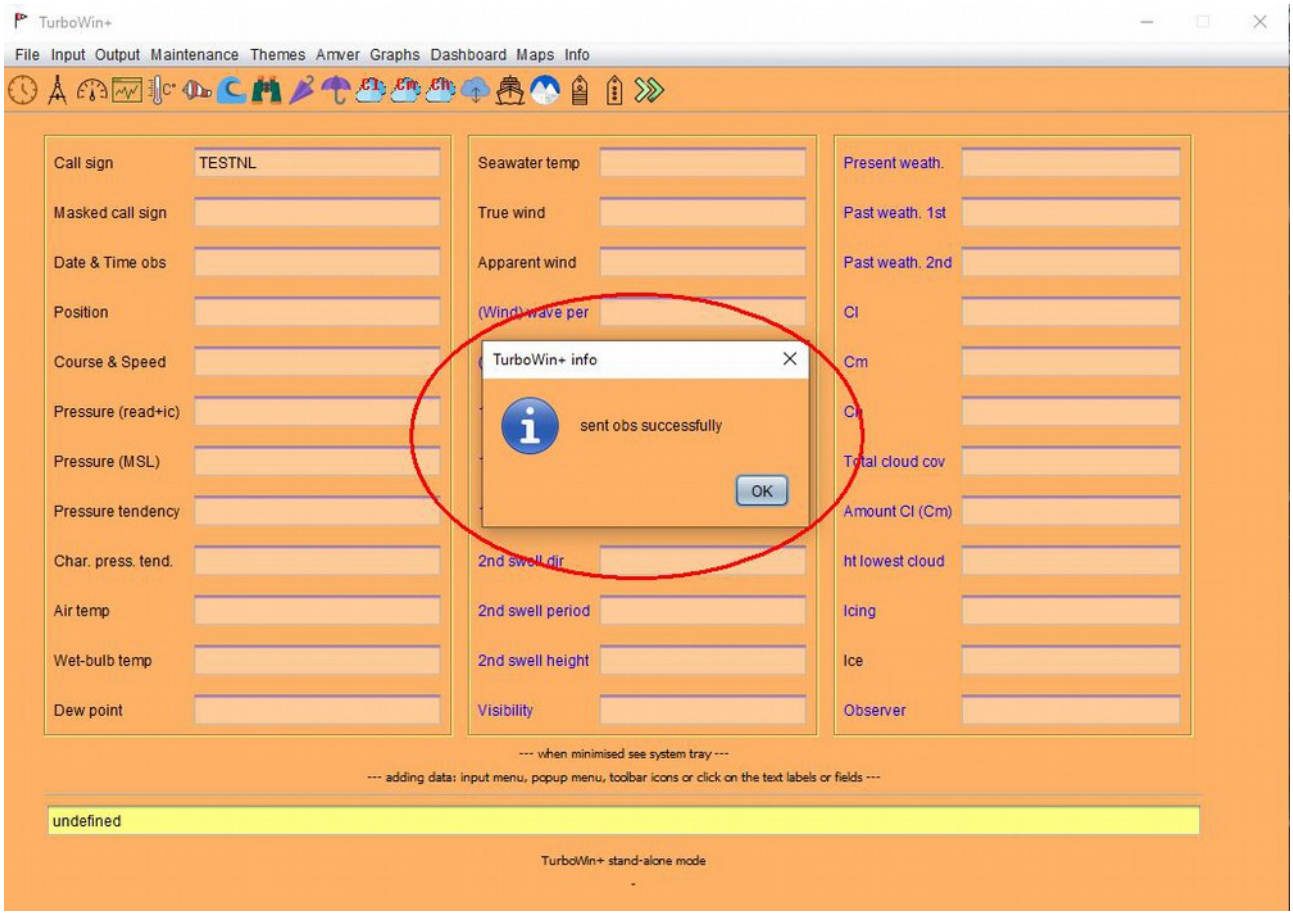

Fig 11 pop-up feedback after sending an observation by Email

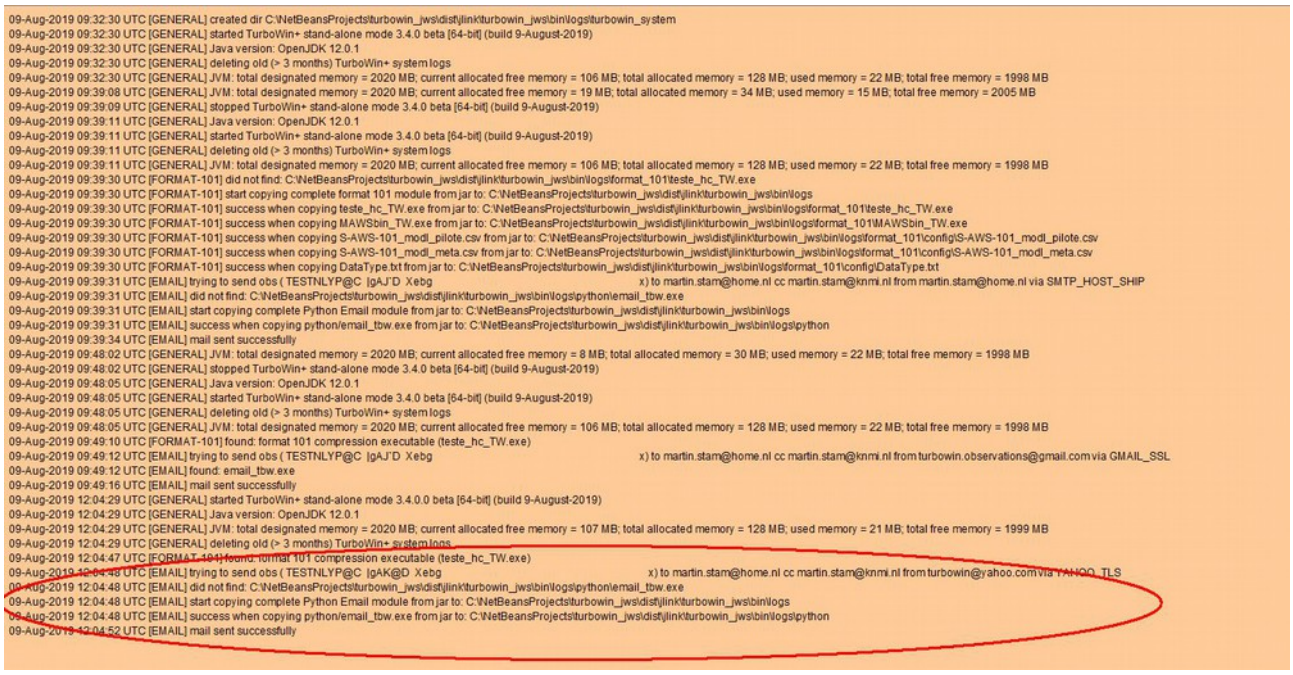

fig 12 Extended logging (TurboWin+: Info → System log)

1.6 Results

See below (fig 13) for a test of an observation manual sent and received 4 times within a minute of each other.

The inbox (“Postvak IN” in Dutch) shows the 4 received observations which were send by a remote computer, with TurboWin+ 4.0 installed, via the following output options:

- Obs by Email (default) [in inbox labeled as “turbowin observations”]
- Obs by Email (local host) [in inbox labeled as “martin.stam@home.nl”]
- Obs by Email (Gmail) [in inbox labeled as “turbowin.observations@gmail.com”]
- Obs by Email (Yahoo) [in inbox labeled as “turbowin@yahoo.com”]

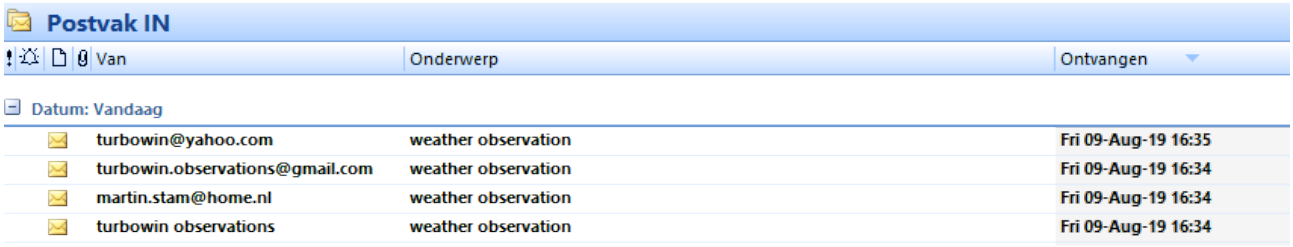

fig 13 inbox, test of 4 received observations sent via 4 different email methods

2 Vaisala HMP155 sensor interface

For air temperature, wet-bulb temperature, dew point and relative humidity

Figure 14 Vaisala HMP155

On Windows 7 the required Vaisala HMP155 USB driver (called: “Vaisala USB device”) must be installed manually (from the accompanied Vaisala cd or from the Vaisala web site). It seems that on most Windows 10 pc’s the driver will be installed automatically. Maybe you have to restart the pc after inserting the HMP155 USB cable. On Linux no additional driver required.

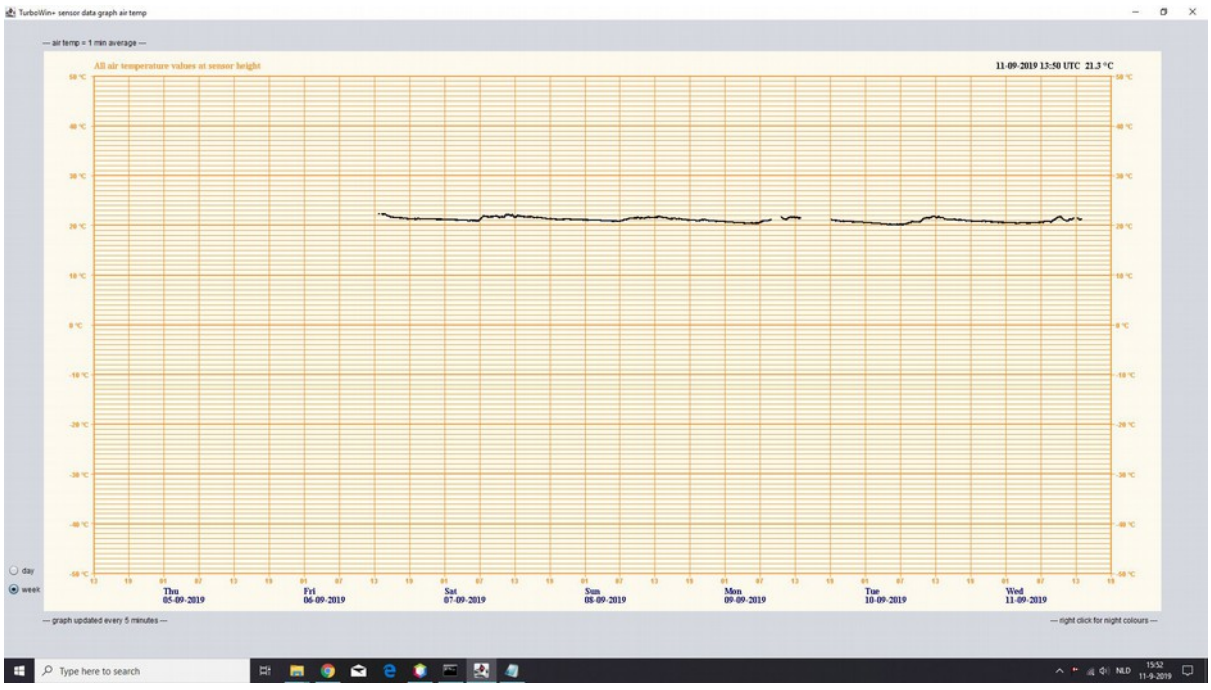

Figure 15 TurboWin+ air temperature graph of measured Vaisala HMP155 data

The HMP155 can be used as one of the required sensors in APTR (Automated Pressure & Temperature reports) mode and manual mode. Observation format #101 or format FM13 via server or email

3 EMOS interface update

-

Figure 16 The main components of EMOS: Mintaka Star + StarX + GuardX; For GPS position, air pressure, pressure tendency and characteristic, air temperature, wet-bulb temperature, dew point and relative humidity

EMOS (Enhanced Manual Observation System) can be used in APTR (Automated Pressure & Temperature reports) mode and manual mode. Connection via WiFi or USB. Observation format #101 or format FM13 via server or email.

4 Setting TurboWin+ to APR (or APTR)

4.1 settings

- Select the observation format (Maintenance -> Obs format setting, Fig 17)
- Prepare the output send options (Maintenance -> Email settings, Fig 18 or Maintenance → Server settings)
- Select the connected sensors (Maintenance -> Serial/USB/LAN device settings, Fig 19)
- Set the APR options (Maintenance -> WOW/APR/APTR/AWSR settings, Fig 20)

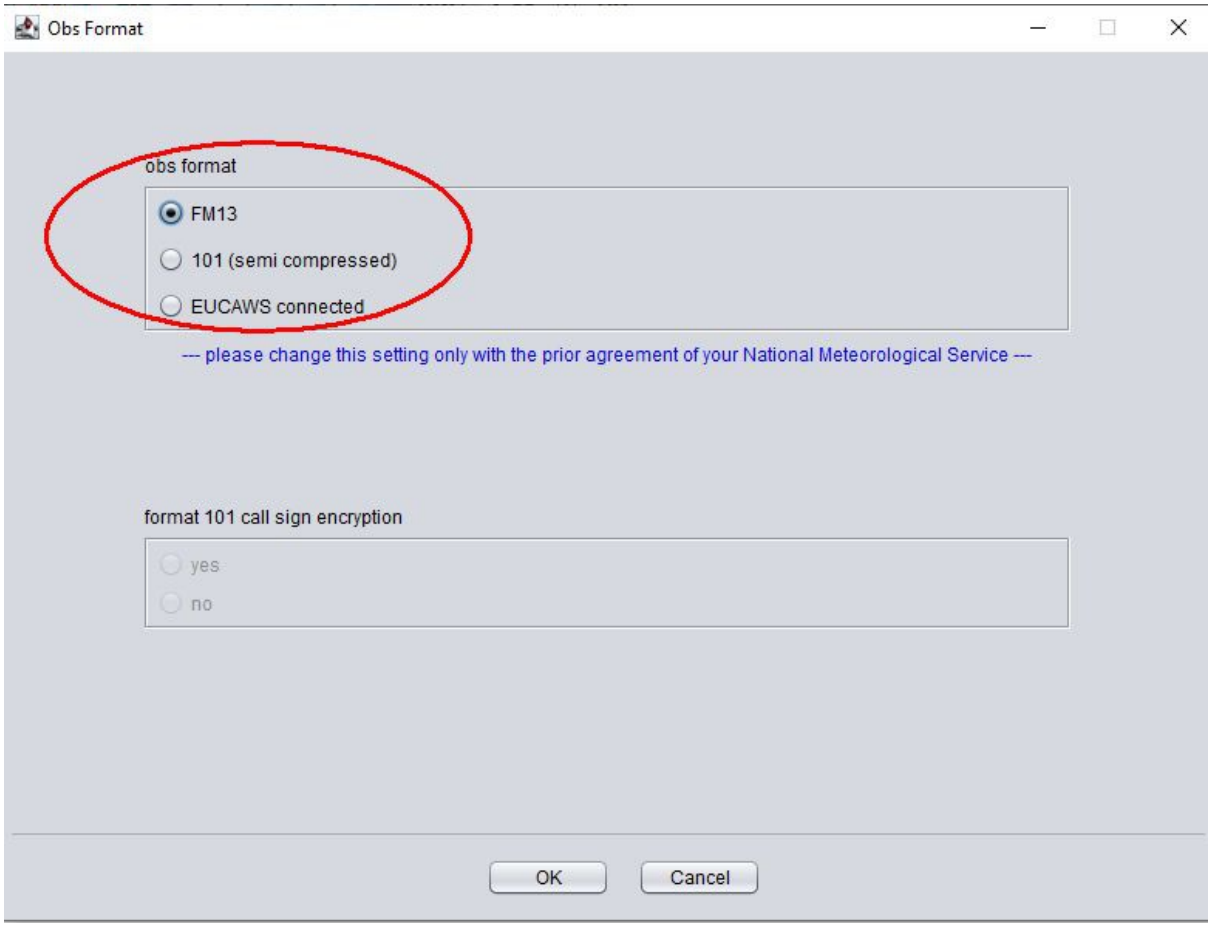

Figure 17 selecting obs format

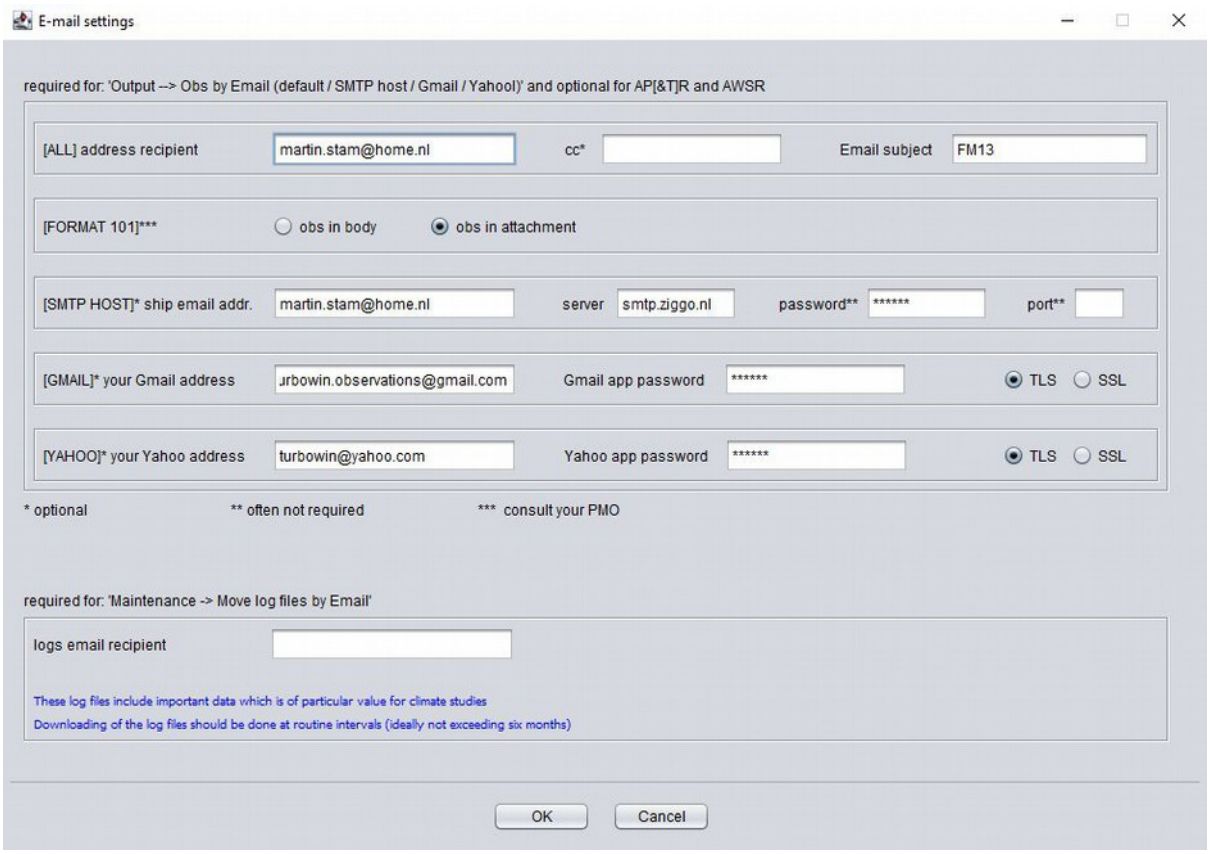

Figure 18 preparing APR (and manual) output send options

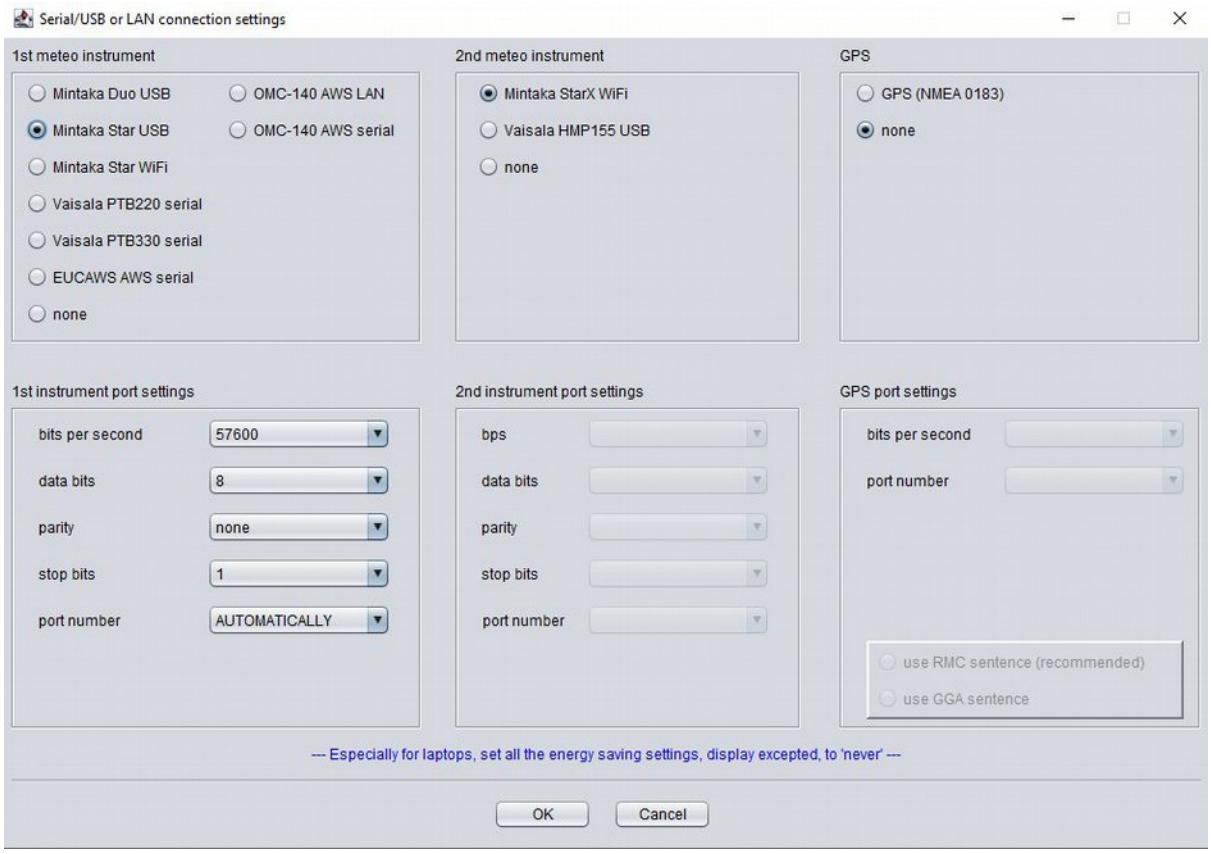

Figure 19 selecting connected sensors

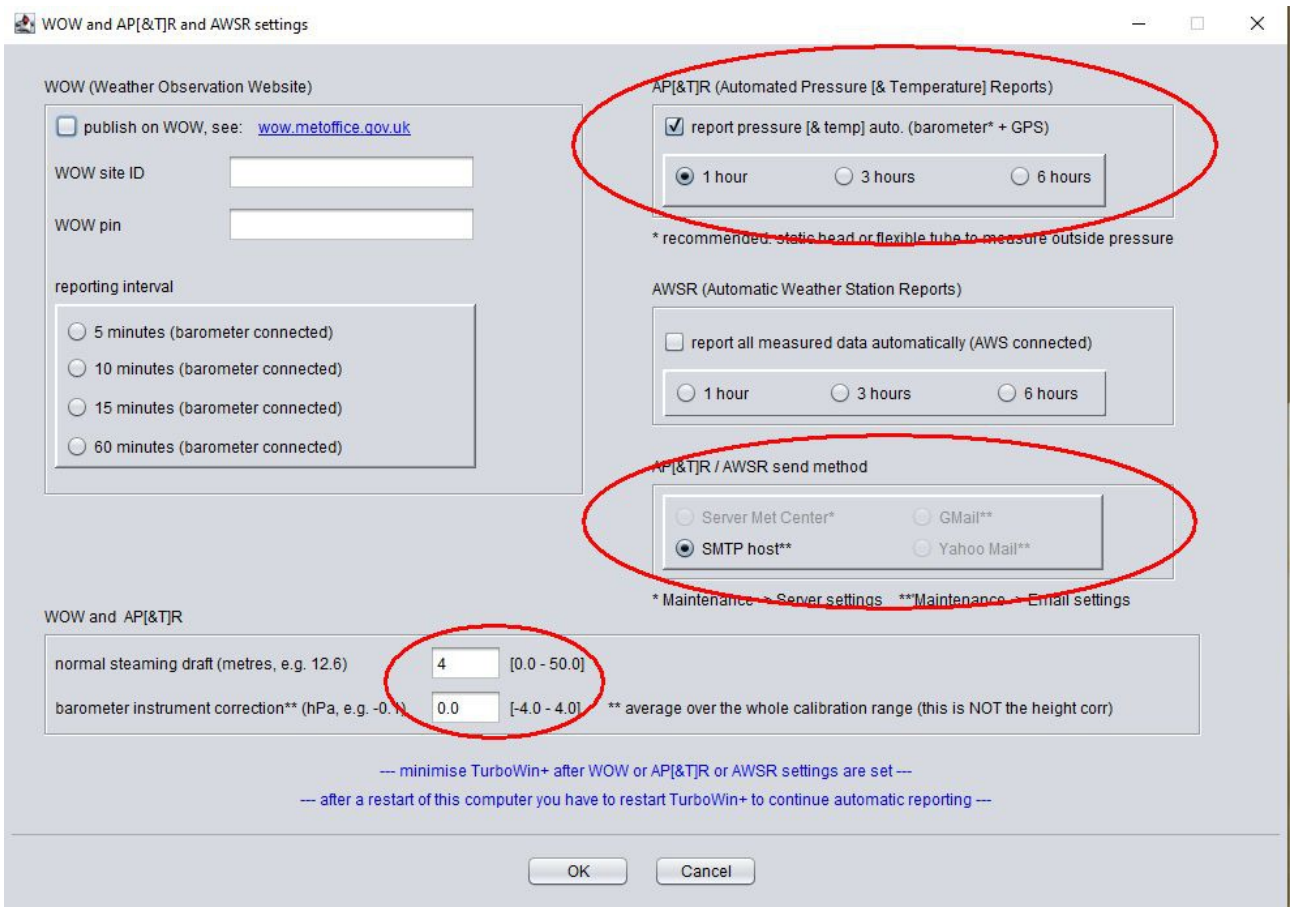

Figure 20 selecting the specific APR/APTR options

4.2 Adding manual observed data when in APR/APTR mode

This is very easy. Open the appropriate meteorological parameter input screen, add the data and click OK (Fig 21). No further actions required. The inserted data will be automatically added to the observation with the next scheduled upload.

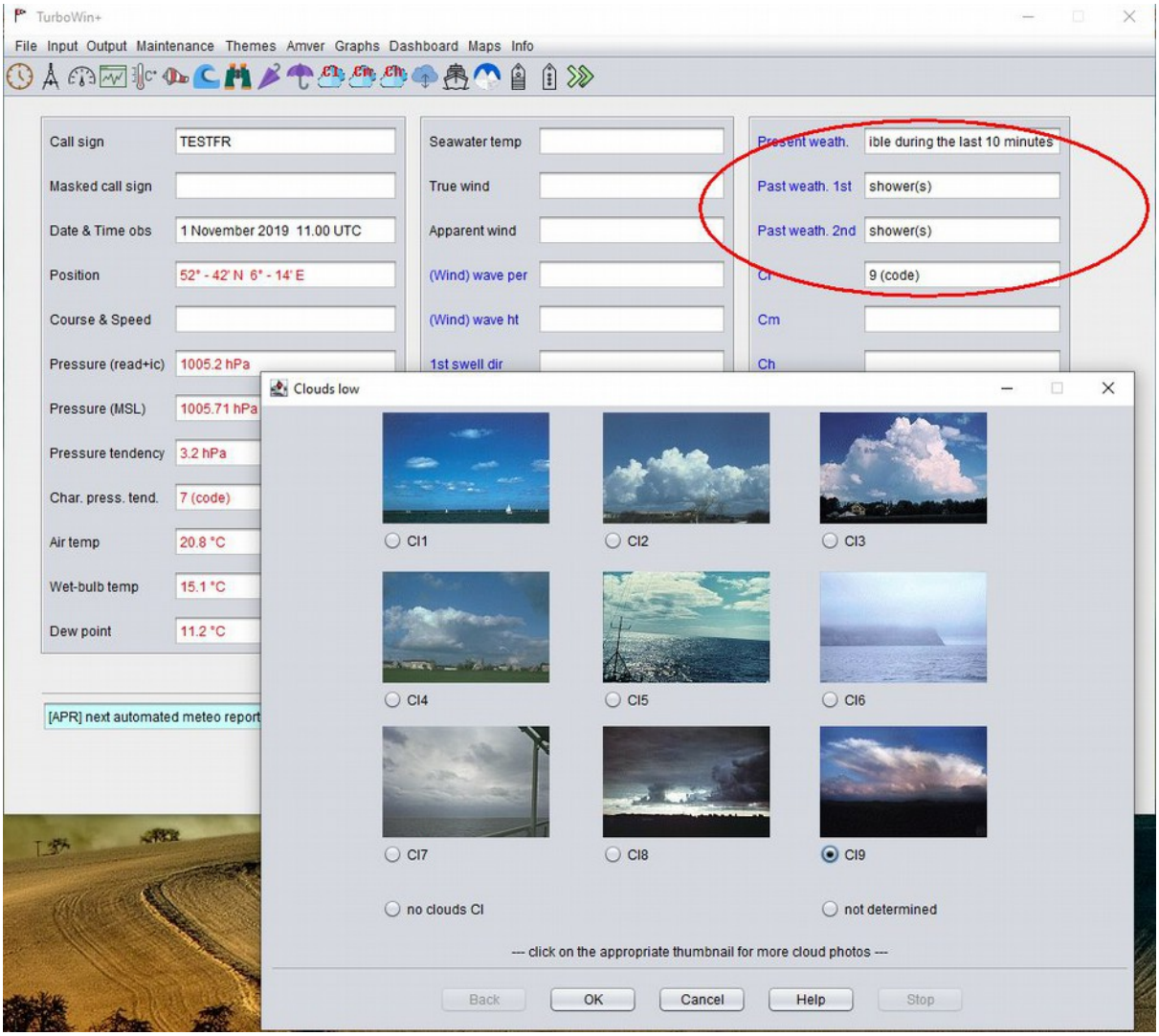

Figure 21 adding manual observed data in APR/APTR mode

4.3 Switching between automatic modes APR/APTR and semi automatic mode

When in APR/APTR mode uncheck the AP[&T]R thickbox “report pressure [& temp] auto.” end click OK (Fig 22). Not necessary to restart the computer. Now all output options and input screens are available as in the full manual mode or semi automatic mode. Check the thickbox again to continue with APR/APTR

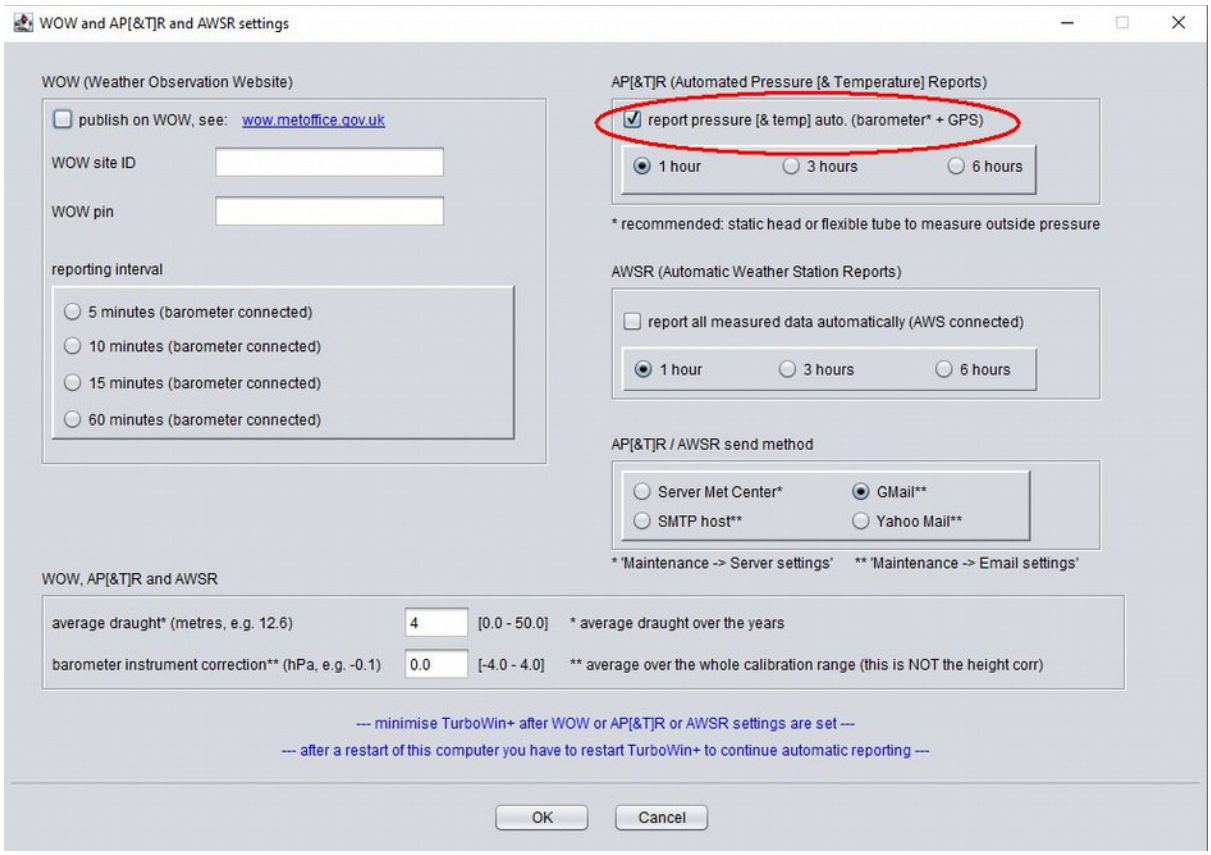

Figure 22 switching between APR/APTR and manual mode on settings screen

4.4 AP[&T]R and AWSR buttons on main screen

If the necessary setting were once made before (Maintenance → WOW/APR/APTR/AWSR settings). You can also simply turn on and off the AP[&T]R mode with one mouse click (Fig 23). Same for the AWSR mode.

Figure 23 switching between APR/APTR and manual mode on main screen

Figure 24 APR/APTR turned on message

4.4 Test results use case 1

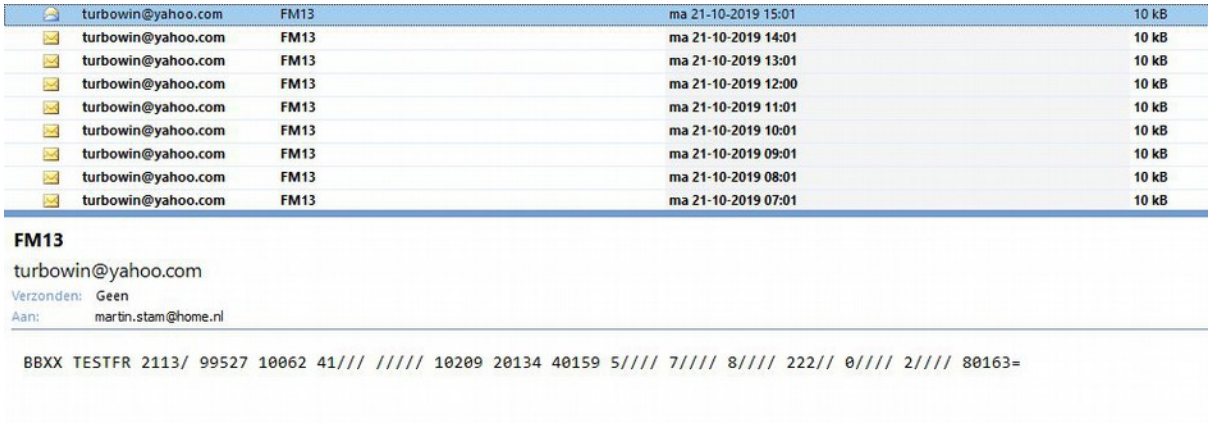

Figure 25 Mintaka Star + StarX via serial communication; hourly APTR FM13 obs uploads via Yahoo mail (eg from the ship) to a shore email address (eg from a Met Center)

4.5 Test results use case 2

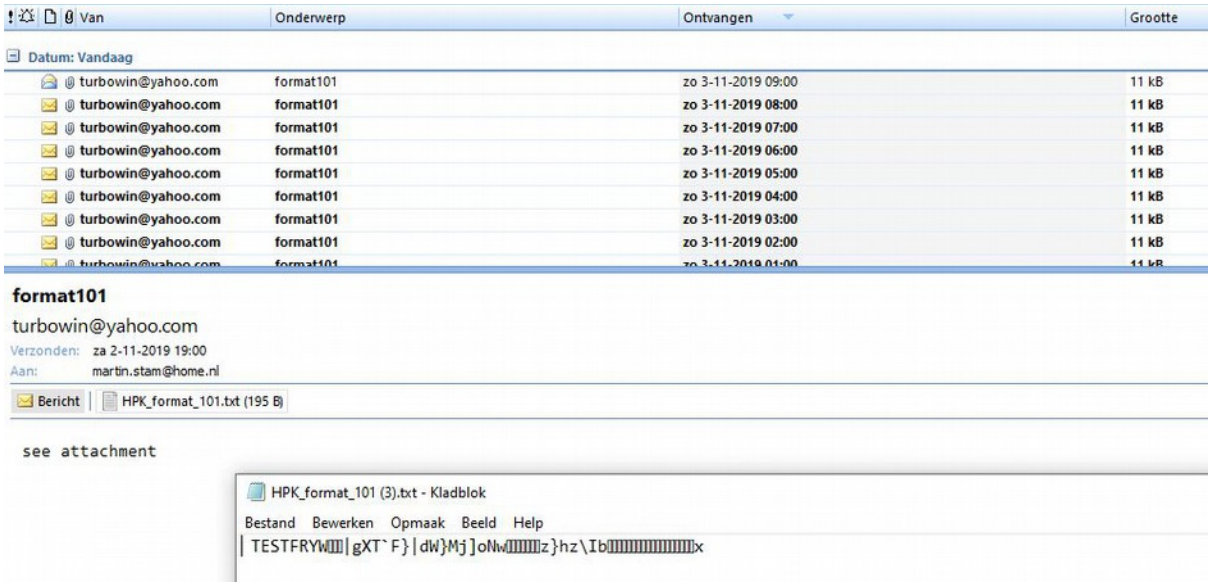

Figure 26 Mintaka Star + StarX via WiFi; hourly APTR format101 obs uploads via Yahoo mail (eg from the ship) to a shore email address (eg from a Met Center)

4.6 Test results use case 3

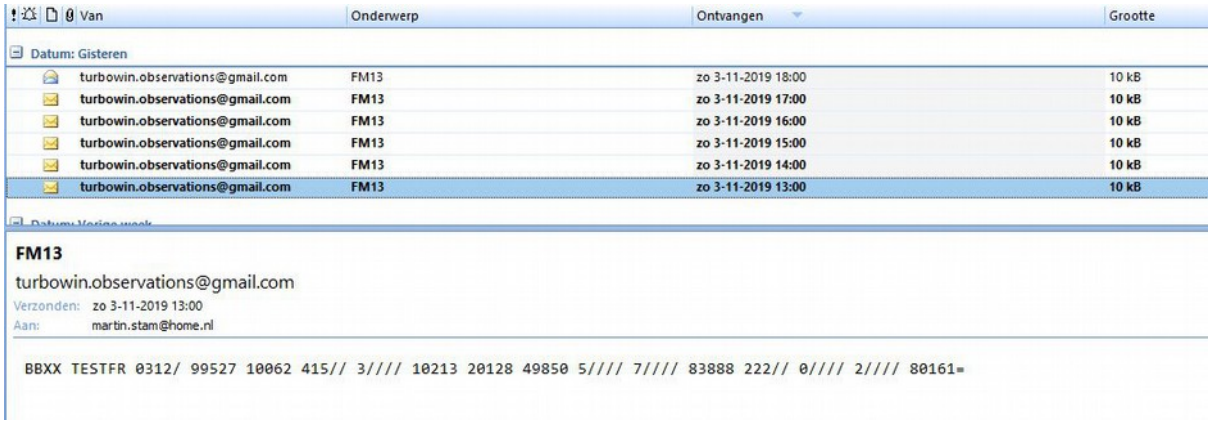

Figure 27 Vaisala PTB330 + HMP155 + (mini)GPS via serial(USB) connection; hourly APTR FM13 obs uploads via GMail (eg from the ship) to a shore email address (eg from a Met Center)

4.7 Real results

The first ship where we installed APR was m.v. Maersk Palermo. From September 2016 to the month of writing (March 2020) we received 20,000 air pressure measurements. All done during North Atlantic crossings, the primary EUMETNET observation area.

m.v. Maersk Palermo

r.v. Pelagia

r.v. Pelagia: 10,000 (high quality) Automated Pressure Reports from 2017 until March 2020

5 Station ID

It was decided that there will be unique identifiers for marine platforms and instrument systems / packages on ships

(https://jcomm.info/index.php?option=com_oe&task=viewDocumentRecord&docID=23827)

So TurboWin+ was updated accordingly. It seems most people involved do not favor the name “SOT-ID” but “Station ID”. For backward compatibility and for meta data requirements also the call sign and masked call sign are sometimes still required by (a few) Meteorological Centres. See Fig 28 for a part of the TurboWin+ new station data input screen

Figure 28 Station data input screen

To ensure the semantic relation between this sub screen and the main screen the “masked call sign” label is renamed to “masked station ID”. On the main screen the Station ID field will now indicate the “masked station ID” (masked call sign) or the “station ID” (SOT-ID) . NB it is not possible to insert both, “masked station ID” and “station ID”

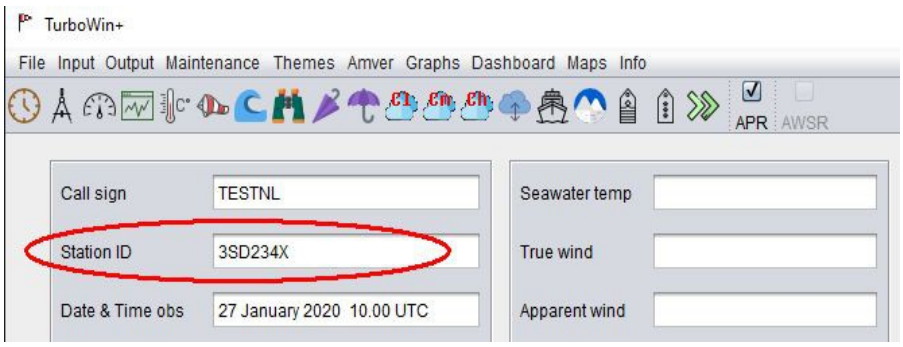

Figure 29 main screen station ID

Use of the IDs in TurboWin+:

1. If the “station ID” was inserted then this ID will be used in the FM13 obs, format#101 obs and the IMMT log.
2. If no “station ID” was inserted but the “masked station ID” is available then this “masked station ID” will be used in the FM13 obs and the format#101 obs but the call sign will be used in the IMMT log
3. If no “station ID” and no “masked station ID” were inserted then the call sign will be used in the FM13 obs, fomat#101 obs and the IMMT log

note: call sign is a mandatory item in TurboWin+, “masked station ID” and “station ID” are, at this moment, not mandatory items. If the “station ID” (SOT-ID) is completely established by all Meteorological Centres “station ID” will become a mandatory item in TurboWin+.

6 Transparent theme

A transparent theme was added (select: Themes → Transparent)

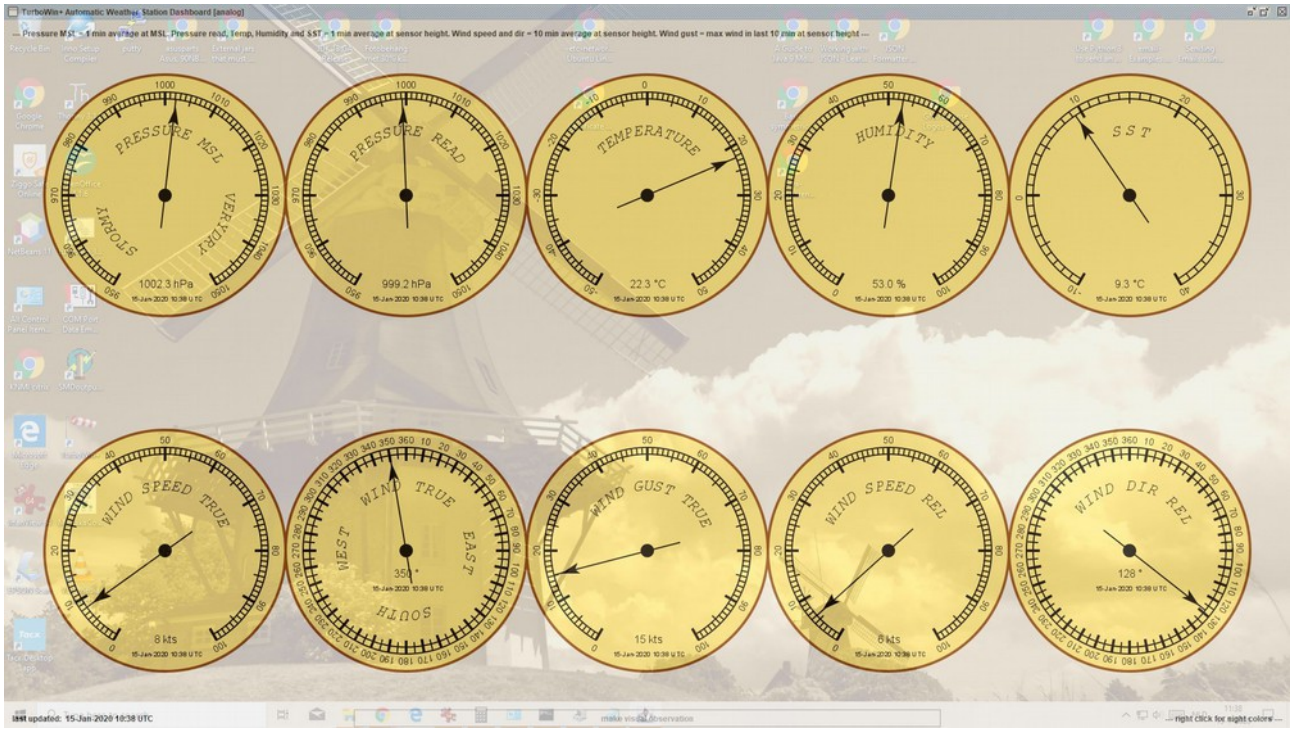

Figure 30 example AWS analog dashboard transparent screen

7 Barometer comparison form (barometer self-check form)

A barometer comparison form was added. Select: Info → barometer comparison

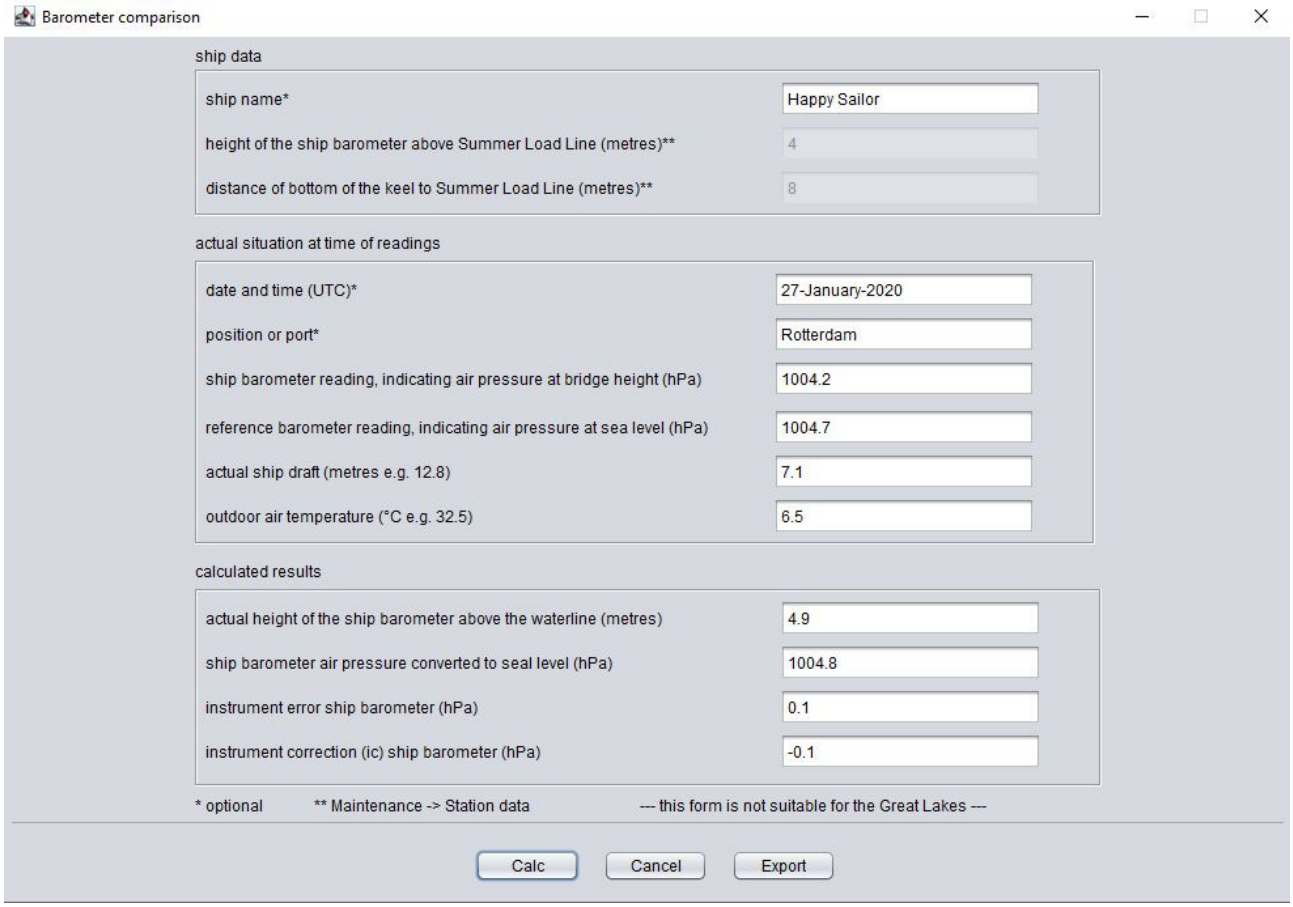

Figure 31 barometer comparison form

8 Open source

TurboWin+ is free software and open-source software (https://www.gnu.org/licenses/gpl-3.0.en.html)

This allow users to run the software for any purpose as well as to study, change, and distribute it and any adapted versions. Anyone is freely licensed to use, copy, study, and change the software in any way, and the source code is openly shared on GitHub. (GPLv3 open-source license)

To emphasis the open source nature of TurboWin+ the official GNUv3 logo was added to the Info → About box.

Permissions:

- commercial use
- modification
- distribution
- patent use and private use

limitations:

- liability
- warranty

Figure 32 About TurboWin+

Also the link (https://github.com/KNMI/turbowin_plus/) to the TurboWin+ open source code was added. See Fig 32.

9 Expert Tips and Tricks

9.1) Memory check

At start up the TurboWin+ memory load of the pc was written to the TurboWin+ system log (Info → System log). See Fig 33

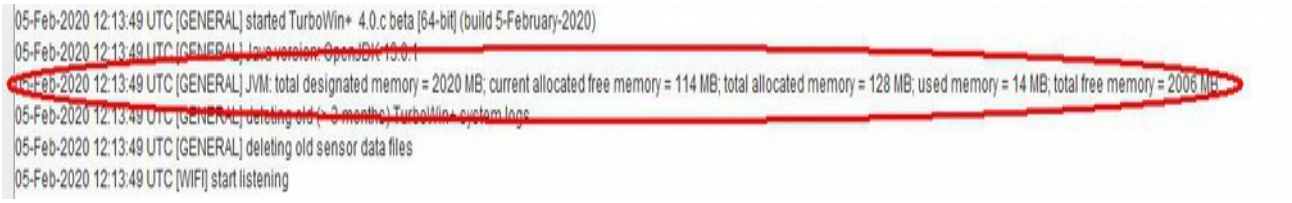

Figure 33 example memory load TurboWin+ at start-up

You can also check the memory load when TurboWin+ is running (snapshot) by clicking on one of the application exit options but not confirming the exit (click on the NO button), see fig 34

Figure 34 TurboWin+ Exit confirmation message

After clicking NO, select Info -> System log. A memory load line was again written in the log, see fig 35

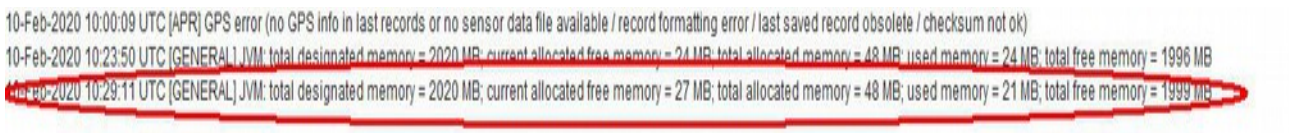

Figure 35 example snapshot memory load TurboWin+

9.2) COM ports (Windows)

“I*n case you are facing with trouble with your COM ports in use that stacking, these brief steps below will help you to clear them out (for example, when you found myself needing to connect via a USB to Serial adapter to a server and noticed that 35 COM ports showed in use). Somehow the COM ports were not getting cleared out.*

The fact is that when you connect a new COM or a USB device (such as smartphone, modem, RS232 to USB converters, etc.), Windows detects newly connected device using Plug-and-Play (PnP) and creates a new virtual COM port with a number from 1 to 255. When you remove this device, the created COM port will not be deleted automatically. If you reconnect this device to a computer, the system re-assigned to it the reserved COM port number. But for any new COM device is assigned the first unallocated (free) COM port number. Thus, over time, a large number of reserved COM ports (in “in use” state) for certain COM or USB devices may appear in the system, although the devices themselves may not be connected to your computer. These ports by-default are not visible to the user in Device Manager”. Continue reading : https://theitbros.com/how-to-delete-com-ports-in-use/

9.3) USB hub

If you use a USB hub it is highly recommended to use a powered hub to avoid potential communication errors. Powered hubs (also called active hubs) come with their own AC adapter and plug into the mains (Fig 36)

fig 36 powered USB hub

9.4) Mintaka Star Bridged connection

If the pc onboard is connected with a Ethernet cable to the internet you can connect the Mintaka Star with an USB cable to the pc. But, as an alternative, you can also use a network bridge by setting the Mintaka Star to WiFi mode (Access Point mode, Star creates its own network) and creating a network bridge under Windows in the Network Connections section (Fig 37)

Note

After every pc restart you have to reconnect the bridge!

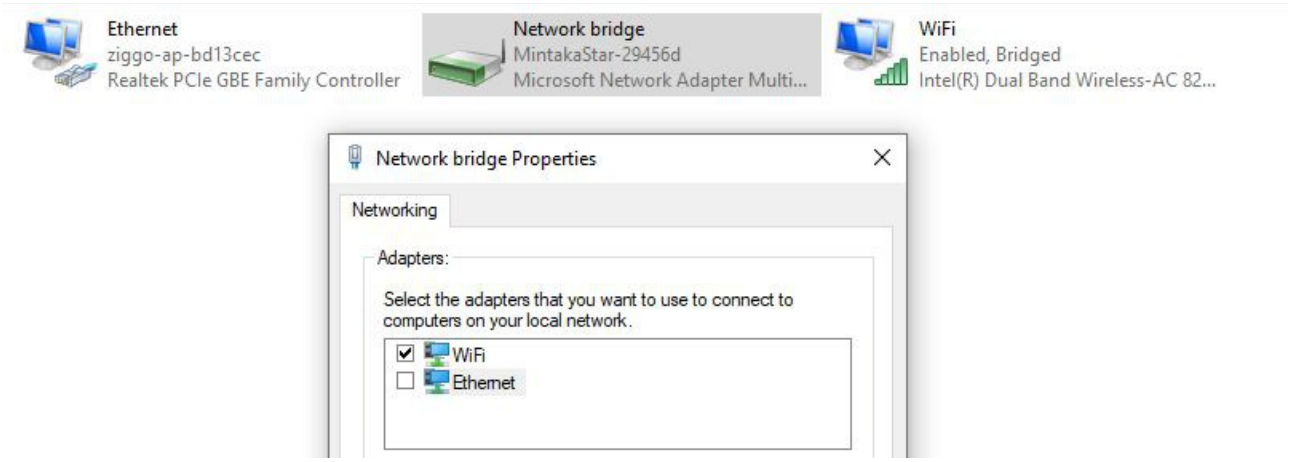

Figure 37 Windows control panel network connections; Mintaka Star via a network bridge

9.5) Verbose mode

For test purposes it is possible to start TurboWin+ in verbose mode by means of invoking “turbowin_launcher.bat”

(e.g. Full path C:\Program Files (x86)\TurboWin+\bin\turbowin_launcher.bat). A console window will be opened (Fig 38).

note

Do not use this option in operational mode

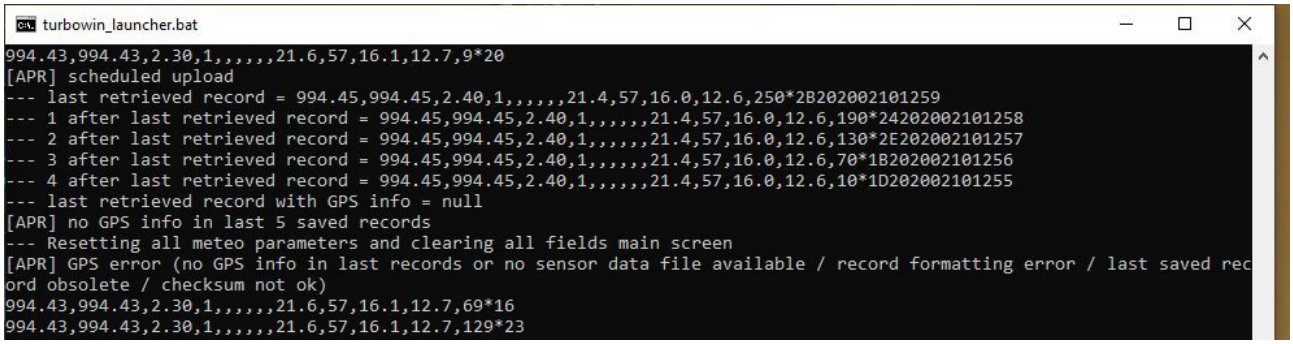

Fig 38 TurboWin+ console window

9.6) Check running more than once instance of TurboWin+ (Windows OS)

TurboWin+ is based on Java. It is not easy for Java programs to check that not more than one instance of an application is running. A well-known and generally accepted approach in the Java community is to claim a never used network computer port (e.g. 12345). So a second instance of TurboWin+ is trying to do the same but get a message that the network port is already occupied (Fig 39)

Fig 39 TurboWin+ was invoked but was already running

Now is it theoretically possible that another Java program is doing the same, or port 12345 is closed by security policy. (NB we never got a message that this was the case). In verbose mode, for testing, it is possible to start TurboWin+ with another random (multiple-instances-check) network port. This can be done by creating a shortcut to “turbowin_launcher.bat” and adding the new network port number on the target line (Fig 40).

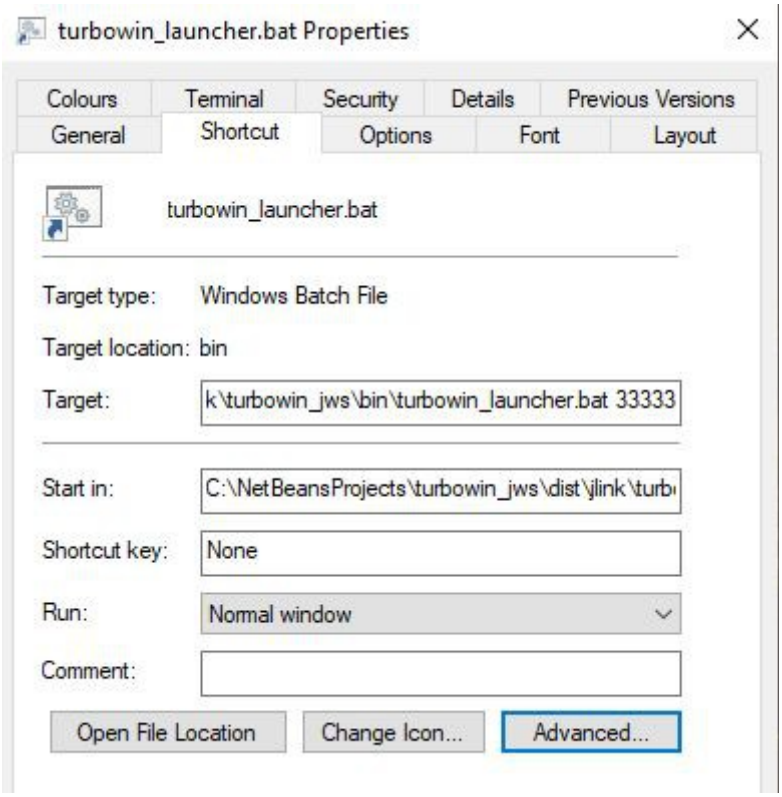

Fig 40 TurboWin+ launcher shortcut with network port 33333 as alternative check multiple instances running

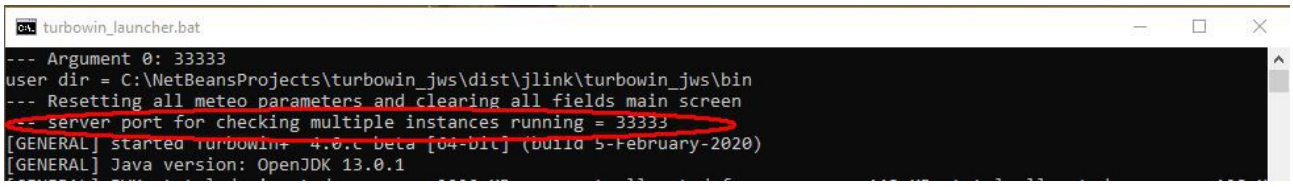

Fig 41 TurboWin+ console window, network port 33333 used for checking more than one TurboWin+ instance is running

The console window will show the result, see Fig 41.

note

Do not use this option, invoking TurboWin+ via “turbowin_launcher.bat”, in operational mode

9.7) Email log

Besides the default logging in the TurboWin+ system log (Info → System log) you can also check the dedicated email log if the mail was sent with a predefined email option (Maintenance → Email settings). Location of this log: ../logs/python/log_python_email.txt. See Fig 42

Figure 42 dedicated email log

9.8) Format #101 logging

There are dedicated format#101 generated logs (although partly in the French language, they could be helpful when trouble shooting) available after one of the output options in format#101 mode was invoked. These logs are always generated in format #101 mode.

Locations:

../logs/format_101/log/log_compression.txt (Fig 43)

../logs/format_101/log/log_decompression.txt (Fig 44)

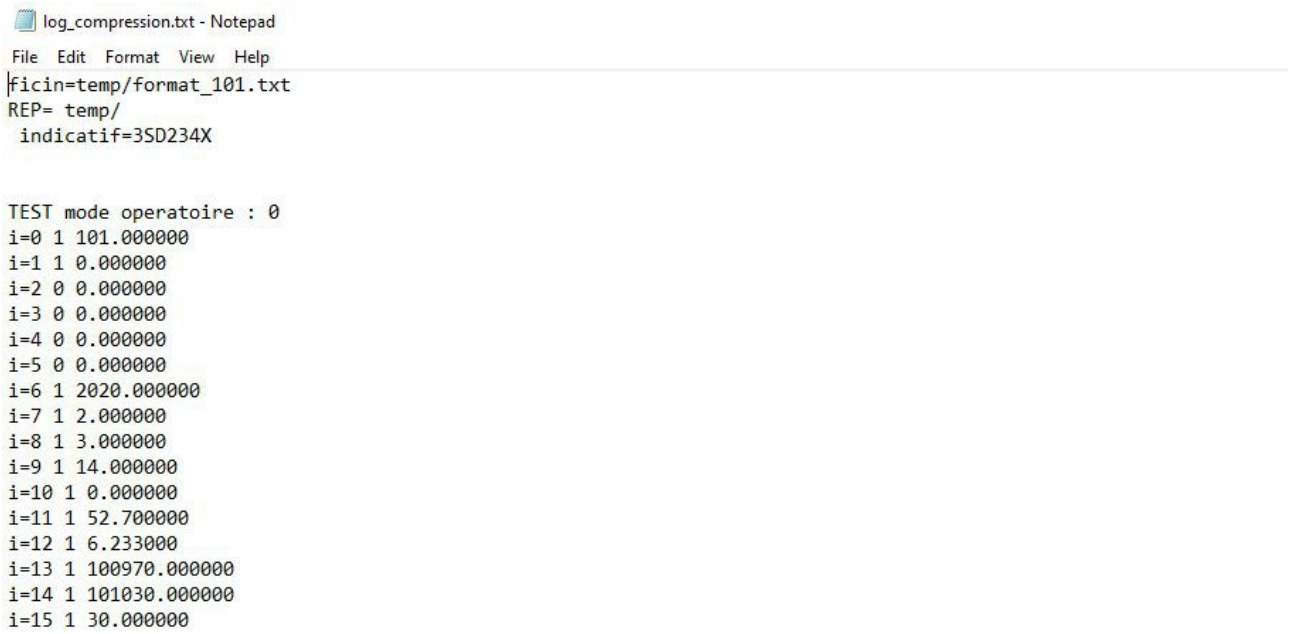

Figure 43 -part of- format#101 compression log

log_decompression.txt - Notepad

File Edit Format View Help

```
005002 -  - 52.700000 - Latitude (coarse accuracy)
006002 -  - 6.230000 - Longitude (coarse accuracy)
010004 -  - 100970.000000 - Pressure at barometer height
010051 -  - 101030.000000 - Pressure reduced to mean sea level
010061 -  - 30.000000 - 3-hour pressure change
010063 -  - 0.000000 - Characteristic of pressure tendency
011001 -  -   ---ABSENT--- - True wind direction clockwise from the north
011002 -  -   ---ABSENT--- - True wind speed
011099 -  -   ---ABSENT--- - Relative wind direction clockwise from the bow
011100 -  -   ---ABSENT--- - Relative wind speed
011041 -  -   ---ABSENT--- - Maximum wind gust speed
011043 -  -   ---ABSENT--- - Maximum wind gust direction
012101 -  - 294.250000 - Air temperature
012102 -  - 289.050000 - Wet bulb temperature
012103 -  - 285.650000 - Dew point temperature
013003 -  - 58.400000 - Relative humidity
022042 -  -   ---ABSENT--- - Sea temperature
020001 - code -   ---ABSENT--- - Horizontal visibility
020003 -  -   ---ABSENT--- - Present weather
020004 -  -   ---ABSENT--- - Past weather 1
020005 -  -   ---ABSENT--- - Past weather 2
020011 - N -   ---ABSENT--- - Total cloud cover
020011 - Nh -   ---ABSENT--- - Cloud amount (low)
020012 - CL_100 -   ---ABSENT--- - Cloud type (low)
020012 - CM_100 -   ---ABSENT--- - Cloud type (middle)
020012 - CH_100 -   ---ABSENT--- - Cloud type (high)
020013 - code -   ---ABSENT--- - Height of base of lowest clouds
022012 -  -   ---ABSENT--- - Period of wind waves
022022 -  -   ---ABSENT--- - Height of wind waves
022003 - SW1 -   ---ABSENT--- - Direction of 1st swell
022013 - SW1 -   ---ABSENT--- - Period of 1st swell
022023 - SW1 -   ---ABSENT--- - Height of 1st swell
022003 - SW2 -   ---ABSENT--- - Direction of 2nd swell
022013 - SW2 -   ---ABSENT--- - Period of 2nd swell
022023 - SW2 -   ---ABSENT--- - Height of 2nd swell
-----------------------------------------------------------------
004192;OBS;1;2020/02/03 14:00:00; <-- date-heure observation
ENTETE_SHIP:YYGGw= 03144
==================== CALCUL RETARD DE DIFFUSION ========================
date courante : heure=14 minute=0 secondes=19 jour=3 mois=2 annee=2020 temps=1580738419
date obs      : heure=14 jour=3 mois=2 annee=2020 temps=1580738400
LAPS          : 0.005278h
entete=SNVF25 LFPW 031400
```

Figure 44 -part of- format#101 decompression log

More additional format#101 log data can be found in directory: ../logs/format_101/temp/

9.9) Linux (64bit) installation

1) Copy “TurboWin+_JPMS.tar.xz” to a directory of your choice and untar the file (e.g. unpack in the newly created dir turbowin)

2) Create a shortcut to TurboWin+ JPMS, there are different ways to do this, partly dependent on the Linux distribution, see below for an Ubuntu example

3) Creating application launcher on Ubuntu: You have to install gnome-panel package which comes up with ability to create a application launcher on the desktop or wherever you like.

Add --no-install-recommends suffix to prevent other package that aren't necessary.

sudo apt-get install --no-install-recommends gnome-panel

After installing gnome-panel, use the following command to create a launcher.

gnome-desktop-item-edit --create-new ~/Desktop

Once you execute the above command, create launcher application will be opened.

4) Insert Name: TurboWin+ [64-bit]

Insert Description: version x.x.x

Insert Command: PATH_TO_TURBOWIN+_BIN/java -m Turbowin_jws/turbowin.main

5) Icon

The custom TurboWin+ desktop icon can be set by clicking on the default gnome panel icon (properties) and pointing to and opening the TurboWin+ icon (“TurboWin+_install.ico”, part of the unpacked “TurboWin+_JPMS.tar.xz” file)

6) Working directory (necessary to set!)

Unfortunately the TurboWin+ working directory can't be set with the create launcher application but must be set manually:

go to the just created shortcut in ~/Desktop, open it with a text editor and add a line at the end that says Path=PATH_TO_TURBOWIN+_BIN (see example below)

Example (text) gnome panel start up TurboWin+ JPMS launcher (dir ~/Desktop):

```
[Desktop Entry]
Version=1.0
Type=Application
Terminal=false
Icon[en_US]=gnome-panel-launcher
Name[en_US]=TurboWin+ [64-bit]
Comment[en_US]=version 4.0
Exec=/home/martin/turbowin/TurboWin+_JPMS/turbowin_jws/bin/java  -m Turbowin_jws/turbowin.main
Path=/home/martin/turbowin/TurboWin+_JPMS/turbowin_jws/bin
Name=TurboWin+ [64-bit]
Comment=version 4.0
Icon=/home/martin/turbowin/TurboWin+_install.ico
```

7) USB

If an instrument will be connected to TurboWin+ you must have full and direct access to the USB ports, to set these permissions (once):

sudo adduser <the user you want to add> dialout

sudo reboot

8) For troubleshooting you can start TurboWin+ with the launcher to monitor all the incoming and outgoing messages,

go to the appropriate directory and start *./turbowin_launcher*

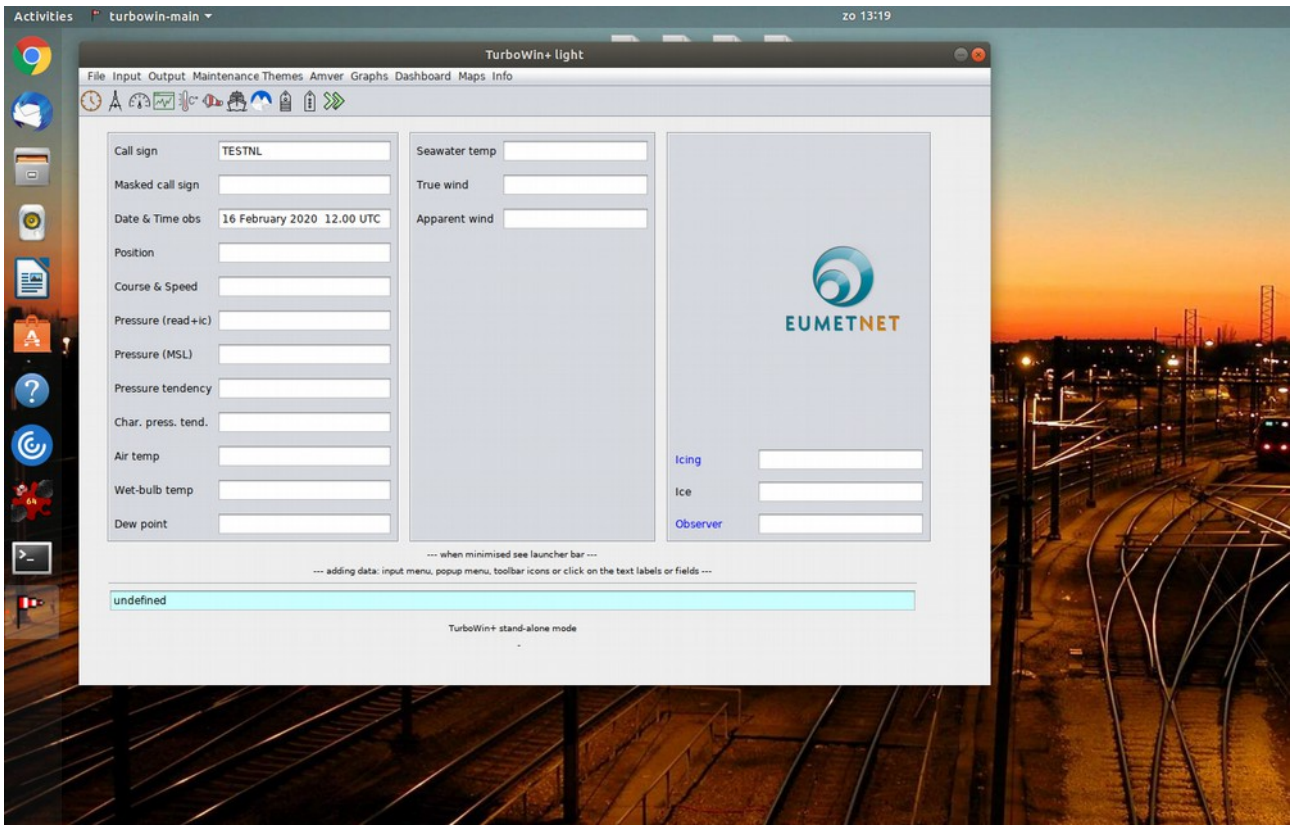

Figure 45 TurboWin+ on Ubuntu 18.04 LTS

9.10) Obs to server

TurboWin+ Server-side API

In TurboWin+ there are options to send (upload) a meteorological observation straight to the National. Meteorological Service. This is the fastest way to get an observation from the ship into the GTS. There are slight differences in the server-side API implementation of FM13 and format #101 observations.

Format #101 API

In TurboWin+ (from version 2.5.1) there is the option to send the format #101 observation straight to a server of a National Meteorological Service. This option is available in the web mode (also called TurboWeb), stand-alone mode and APR and APTR (Automated Pressure [&Temperature] Reports) mode

Upload URL format 101:

TurboWin+ sends a GET HTTP request to the URL which can be set in TurboWin+.
The server must expect the HTTP request, in the form of GET. When received, the server must interpret and validate the information supplied and respond as below (see also Fig 17)

example: upload URL which can be set manually as a setting in TurboWin+:
http://www.knmi.nl/samenw/turbowin/webstart101/index_webstart_101.php?

So the server site script could be placed on every server with every path and could be named "index_webstart_101.php" but also this is not mandatory. But of course the full URL must be set once manually in TurboWin+ and must always end with a "?"

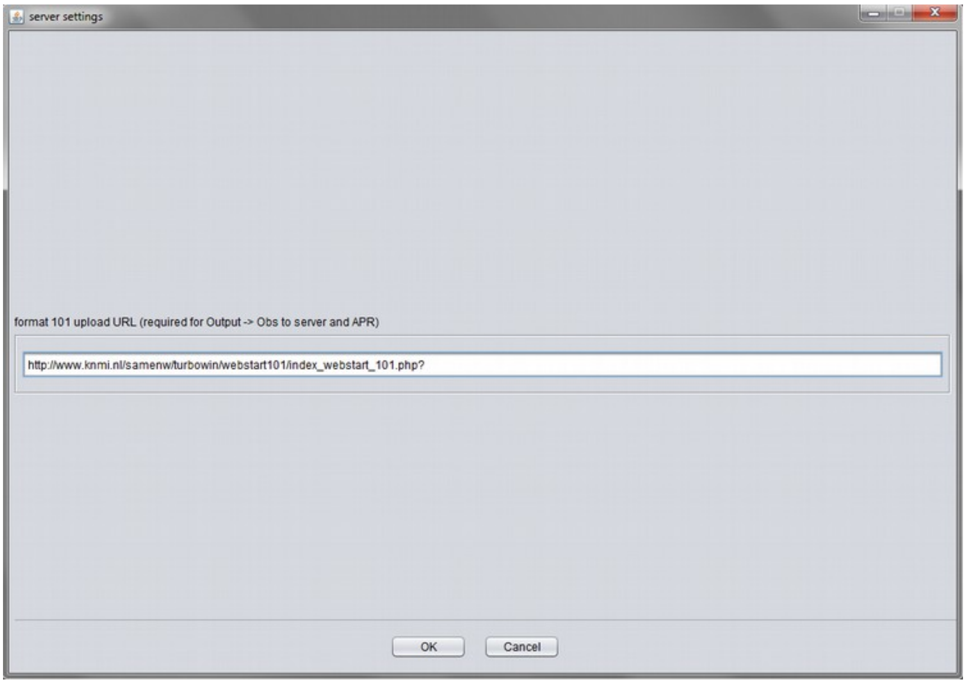

Figure 46 TurboWin+ input screen to set upload URL (inserted URL as an example)

TurboWin+ will add the weather observation as key/value pair indicating the weather data. Key: "obs" the weather data itself is according format#101 and also encoded by TurboWin+. TurboWin+ translates (encodes) the format#101 observation into application/x-www-form-urlencoded format using the UTF-8 encoding scheme.

Example of a full upload string:

http://www.nationalmeteoservice.com/observations/turbowin/obs.php?obs=+TESTNLYP%40C%7F%7C%60XZ %40F%7D%7CdW%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F %7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7F%7C%40

note: So on the server the received observation string must be decoded e.g. with php function urldecode (Decodes any %## encoding in the given string. Plus symbols ('+') are decoded to a space character)

<u>Response and Errors format 101</u>
All requests must return a HTTP response (status) code. A success is indicated by 200. Anything else is a failure. TurboWin+ will only use the HTTP response code and not the HTTP response text. TurboWin+ translates the HTTP response code into a human readable error message which will pop up after sending the observation to the server.

Besides the common standard HTTP response codes, TurboWin+ can also translate the following non standard response codes:

700: translated into: "obs invalid format";

701: translated into: "station ID or call sign in the obs not on the E-mail whitelist of this server. Please send an E-mail with your station ID or call sign to your PMO or National Meteorological Service"

702: translated into: "obs routing from server to Meteorological Centre failed";

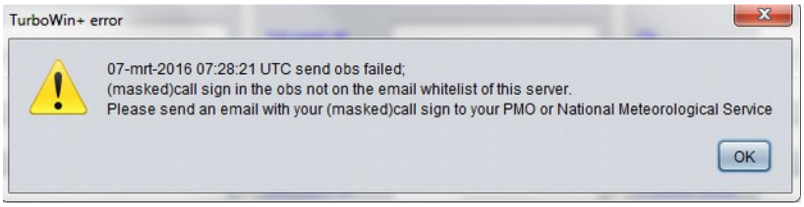

Figure 47 Server-side HTTP response code 701 translated by TurboWin+ and shown as a pop-up message in TurboWin+

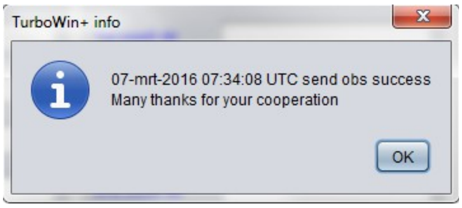

Figure 48 Server-side HTTP response code 200 translated by TurboWin+ and shown as a pop-up message in TurboWin+

FM13 API

In TurboWin+ it is also possible to send a FM13 observation straight to a server of a National Meteorological Service.

Information in this chapter 'Obs to server'

The information in this chapter is subject to change. For the latest info please send a mail to martin.stam@knmi.nl

KNMI scripts

On request the php scrips of the KNMI server-side implementation can be obtained from martin.stam@knmi.nl

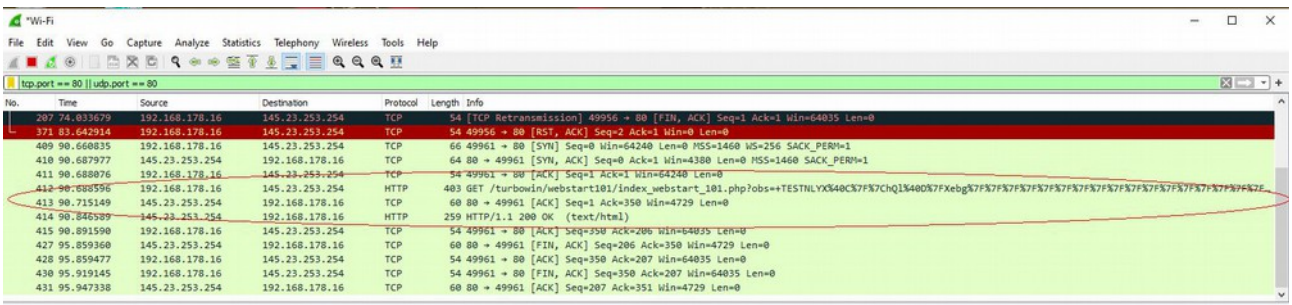

Figure 49 example network monitoring trace TurboWin+ format #101 obs upload + response

9.11 SRM (Serial communication Recovery Mode)

If an application has lost the serial communication with a device, most of the times you have to manually restart the system. Thanks to the in TurboWin+ integrated SRM (based on threading) most times it will recover automatically after loosing the serial connection. You could test this eg by removing the (serial)USB cable and after a while reconnecting the USB cable again. (Every hour [hh+43] minutes the serial connection will be tested and re-established if necessary)

> 04-Nov-2019 08:40:06 UTC [GPS] data listener thread cancelling
> 04-Nov-2019 08:43:06 UTC [GPS] starting-com-port closed (User-Specified Port)
> 04-Nov-2019 08:43:11 UTC [GPS] found serial com port (ok): Prolific USB-to-Serial Comm Port (COM12)
> 04-Nov-2019 08:43:15 UTC [GPS] found GPS on port: Prolific USB-to-Serial Comm Port (COM12)
> 04-Nov-2019 08:43:16 UTC [GPS] data listener thread restarting
> 04-Nov-2019 08:44:06 UTC [GPS] start receiving data again

Figure 50 SRM logged

9.12 Check your observations

If internet available you can check your sent observations on the E-SURFMAR VOS Control Panel (until a few days ago)

TurboWin+ select: Info → Statistics (internet).

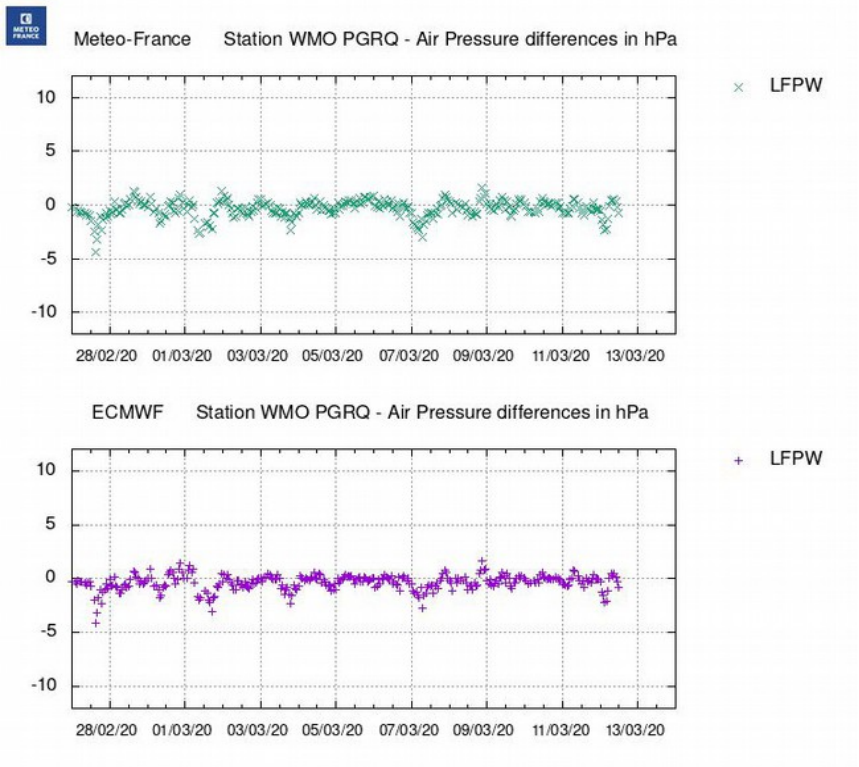

Figure 51 example of air pressure quality control on the E-Surfmar VOS Control Panel

last updated: 16-March-2020