

Presented by

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HAIC/HIWC Science Team Meeting

HAIC/HIWC Status of datasets – SAFIRE dataset



What was recorded ?

Digital output from instruments

- GPS/Inertial navigation system (Novatel+ AIRINS)
- Dew-point hygrometers 1011-C, CR2
- WVSS-II
- ADC (TAS, T, Z)
- Rosemount ICE detector

Analog output from instruments

- P, ΔP
- T (2 sensors)
- Thin-film Humidity

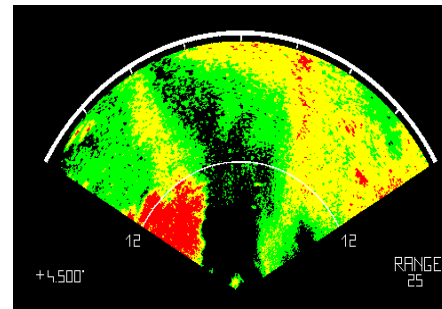
Images

Cockpit



→ T. Ratvasky

Pilot's WX radar



→ S. Harrah

Delivered files

Just after flight:

- Quick-looks plots
- Flight reports
- Copy of raw measurements of non-SAFIRE instruments
- Data file of « safe » parameters

A few days after each flight:

- . General purpose 1 Hz files, containing usual meteorological parameters (NASA-AMES format).
- . « Fast » (5Hz) angles and RICE

Currently available :

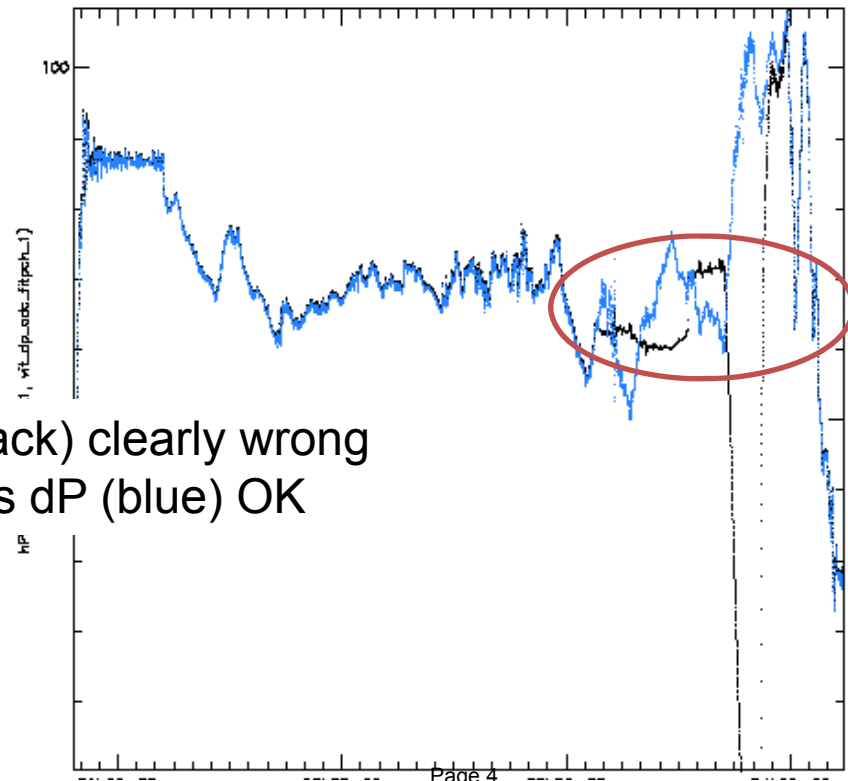
1. Version 2 of general purpose 1 Hz files (better wind, more hygrometers)

The boom “problem”

Not-so rare problems on dynamical pressure measurements on the boom.

Avionics (« ADC ») measurements provide a robust back-up

Probable cause : Ice accretion.
isn't it precisely the point of HAIC ?



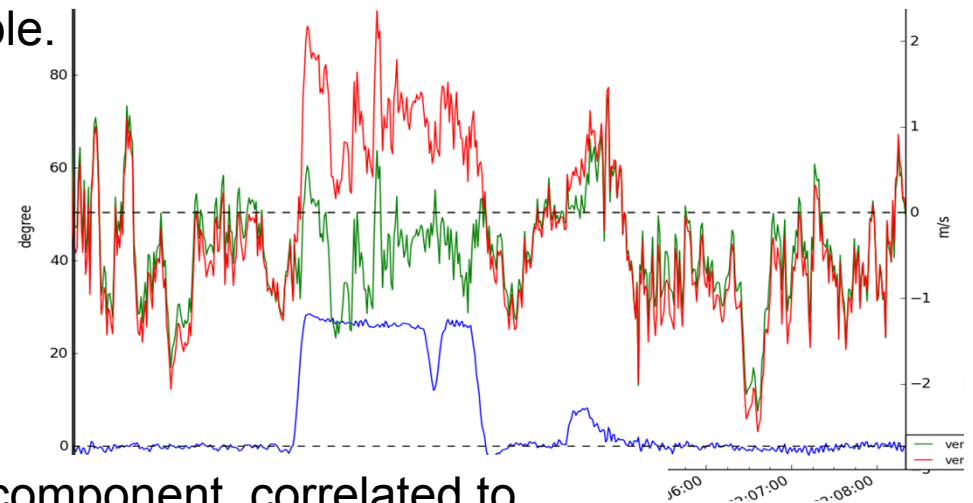
Boom dP (black) clearly wrong
while avionics dP (blue) OK

Wind

Wind computation depends on semi-empirical laws (pressure \rightarrow speed, angles) and empirical small offset correction.

Values used in early 2014 are the sum-up of additional correction : (approx.) OK in straight legs, BAD during turns . This has been cleaned-up, better values are currently available.

End-of-2014 version (green) doesn't bump during turns

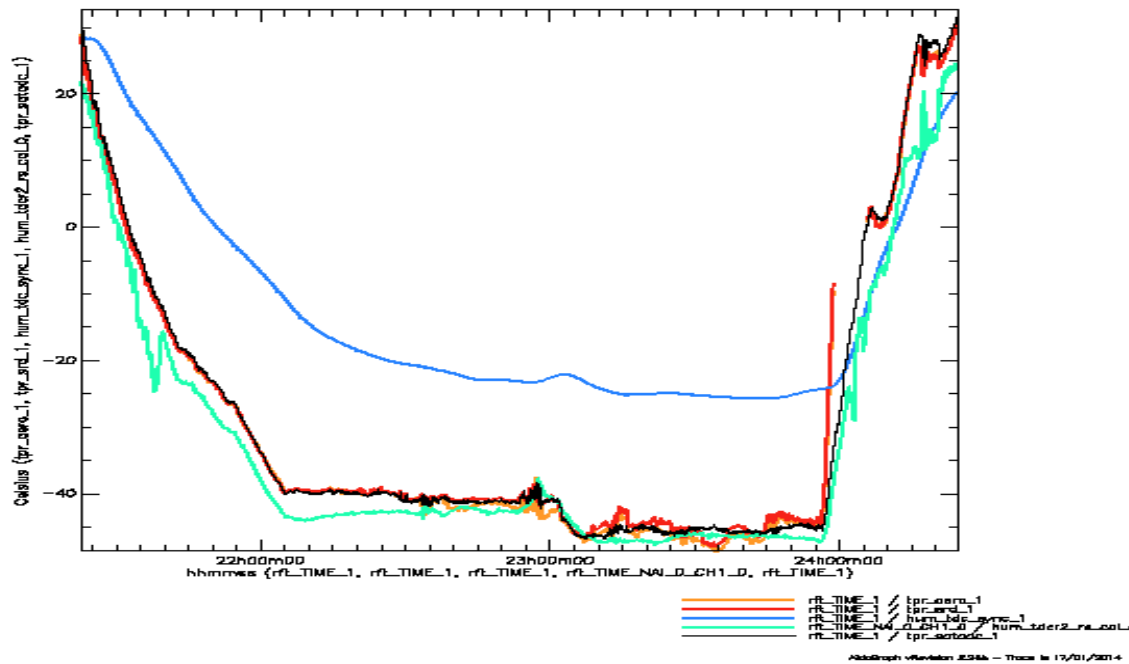


Remaining problem : bias in vertical component, correlated to altitude (feedback from A. Protat).

Hygrometers

The first dataset contained only the 1011-C. Bad luck !
 Current version includes CR2 (better, but not perfect) and WVSS-II

Campagne HAIC
 Vol FALCON fs140002 du 16/01/2014
 de 21h22m51 à 00h24m39 UTC le lendemain



F20		Mesures		
Date	N°	Td_c analo	Td_c RS	CR2
jeu 16/01	1	=RS		
	2			
ven 17/01	3			
sam 18/01	4	=RS		
mar 21/01	5			
jeu 23/01	6			
ven 24/01	7			
lun 27/01	8	=RS		
mar 28/01	9			
mer 29/01	10			
jeu 30/01	11			
dim 02/02	12			
lun 03/02	13			
mar 04/02	14			
mer 05/02	15			
ven 07/02	16			
sam 08/02	17			
sam 08/02	18			
dim 09/02	19			
lun 10/02	20			
lun 17/02	21			
lun 17/02	22			

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Sum-up and forward plans

A new version of the dataset exist :

- . Wind improvement
- . More hygrometers

Work still going on, hoping to un-bias vertical wind. This will result in a third version.

Questions about dataset, files, ... can be addressed to `bruno.piguet@meteo.fr`

High Altitude Ice Crystals (HAIC, 314314)

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