PREDICT RAF GV DATA

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OVERVIEW (page 1)

	Normal use	Primary	Secondary
Static pressure	PSXC	PS_A	PSFC (fuselage)
Dynamic pressure	QCXC	QC_A	QCFC (fuselage) QCRC (radome, some icing) QCC_GP (gust pod, rare icing)
True air speed	TASX	TAS_A	TASR (radome, some icing) TAS_GP (gust pod, some icing)

For several state parameters and velocity parameters, use the avionics system as the “best set of parameters”.

OVERVIEW (page 2)

	Normal use	Comments	Secondary
Attack angle	ATTACK	(radome, some icing)	
Sideslip angle	SSLIP	(radome, some icing)	
Wind speed	WSC	(radome, some icing)	WSC_GP (gust pod)
Wind direction	WDC	(radome, some icing)	WDC_GP (gust pod)
East component	UXC	(radome, some icing)	WSC_GP (gust pod)
North component	VYC	(radome, some icing)	
Vertical component	UIC	(radome, some icing)	WSC_UIC (gust pod)

When using in-situ winds, check that the basic radome components (e.g. ATTACK and SSLIP) are OK.

Consider using the experimental gust pod winds (*_GP). This is mostly good, but the system is less characterized in comparison to the radome derived winds.

Also check with the avionics winds (IWS and IWD) to see if the radome winds are OK. These winds are “black-box” (no information from Gulfstream/Honeywell)

OVERVIEW (page 3)

	Normal use	Primary	Secondary
Temperature	ATX	AT_A (avionics)	ATHR1 (Harco) ATHR2 (Harco) ATFH1 (Rosemount) ATFH2 (Rosemount)
Humidity/dewpoint	DPXC	DP_VXL (VCSEL)	DPLC (left cooled mirror) DPRC (right cooled mirror)

Temperature measurements:

General good agreement, but distinct difference between avionics and other temperature measurements at high altitude. AT_A is a black-box temperature, the other temperatures use RAF derived calibrations and recovery factors. Comparison with previous dropsondes mostly show that AT_A and dropsondes compare well. Active work at RAF, but will depend on further flight tests.

Humidity measurements:

VCSEL has best response at high altitude (time and absolute value)
Cooled mirror sensors have some “cold-soak” issues in descends

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		Normal use	Comments
CCN (aerosol)		CONCN	Poor performance at high altitude (subsequently re-designed at manufacturer)
UHSAS (aerosol)		CONCU	Poor performance at high altitude (subsequently re-designed at manufacturer)
CDP (droplets/ice)		CONCD	Good performance; sizing of ice particles?
2D-C		CONC2CA CONC2CR	All particles; good perf., except in high IWC Round particles; good perf., except in high IWC
SID-2			Awaiting processing
3V-CPI			Worked well, awaiting software and processing
IWC	CVI		Worked well, saturated in high IWC
King/RICE		PLWCC/RICE	Worked well when LWC was present

OVERVIEW (page 6)

Video with added parameters Completed

Position, IRS OK
Position dGPS OK (ready for pressure perturbation studies)

Check day-to-day status of instrumentation in the Project Manager's QA report (PREDICT.QA.Rev1.doc), as authored by Allen Schanot.

Comments?