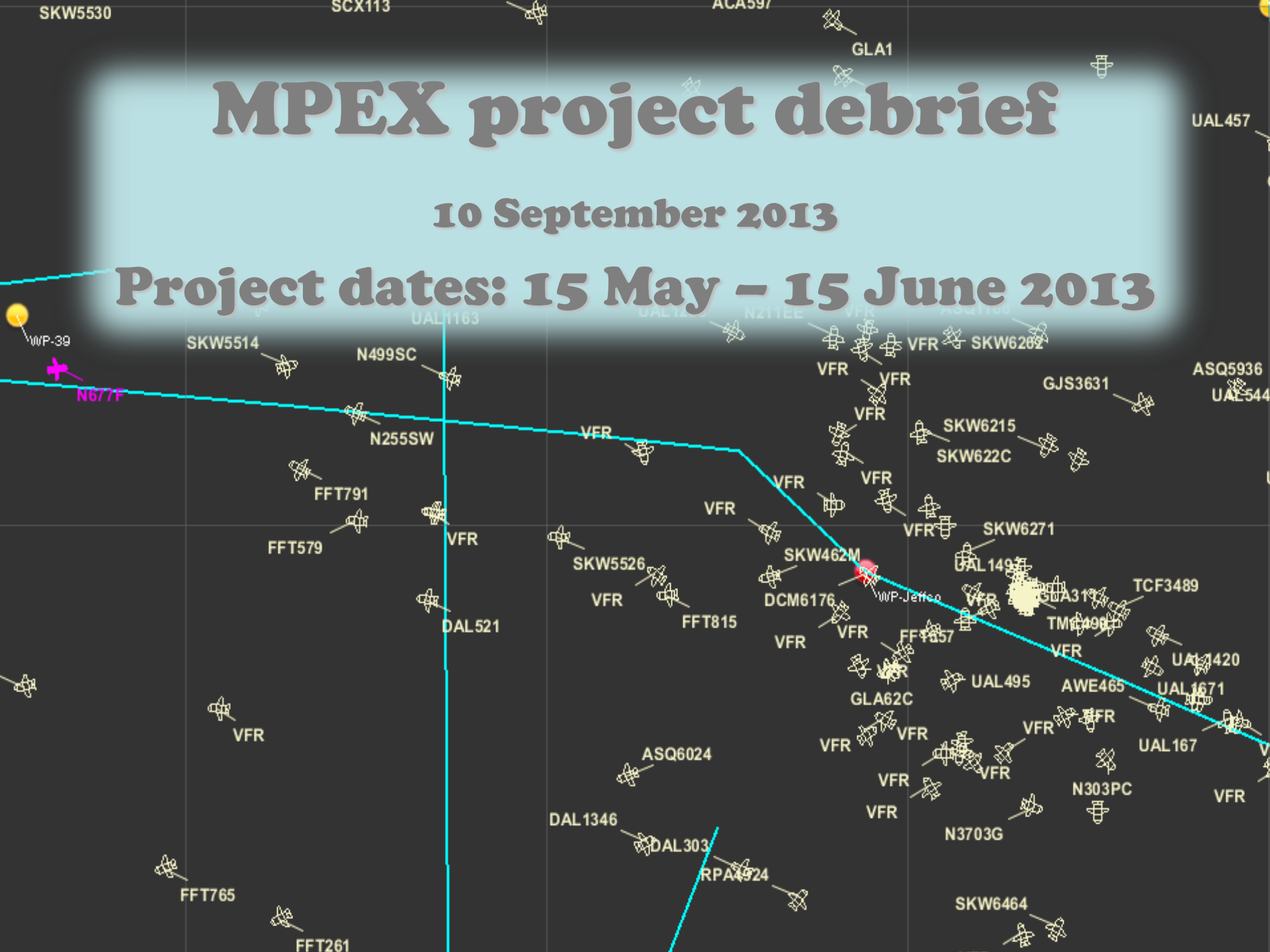

MPEX project debrief
10 September 2013
Project dates: 15 May – 15 June 2013
SKW5530
SCX113
ACA597
GLA1
UAL457
WP-39
N677F
SKW5514
N499SC
UAL1163
N211EE
SKW6262
ASQ5936
UAL544
GJS3631
N255SW
SKW6215
SKW622C
FFT791
FFT579
SKW6271
SKW462M
SKW5526
DCM6176
WP-Jeffco
TCF3489
DAL521
FFT815
FFT457
UAL1420
UAL495
AWE465
UAL1671
GLA62C
UAL167
ASQ6024
N303PC
DAL1346
DAL303
RPA4924
N3703G
FFT765
SKW6464
FFT261
VFR

Flight Hours

MPEX project flight hour and sonde release report

8/19/2013

Flight	Date	Hours	Sondes	Research objective	Remaining
TF01	5/7/2013	2.9		Instrument testing	91.1
TF02	5/9/2013	2.2		Instrument testing	88.9
TF03	5/10/2013	2.5		Instrument testing	86.4
RF01	5/15/2013	5.1	27	Convective precursors	81.3
RF02	5/16/2013	5.5	31	Convective precursors	75.8
RF03	5/18/2013	5.6	17	Convective precursors	70.2
RF04	5/19/2013	5.0	29	Convective precursors	65.2
RF05	5/21/2013	5.9	27	Convective precursors	59.3
RF06	5/23/2013	5.7	29	Convective precursors	53.6
RF07	5/27/2013	5.9	29	Convective precursors	47.7
RF08	5/28/2013	4.7	21	Convective precursors	43.0
RF09	5/30/2013	6.0	27	Convective precursors	37.0
RF10	5/31/2013	6.2	29	Convective precursors	30.8
RF11	6/3/2013	6.6	32	Convective precursors	24.2
RF12	6/8/2013	5.8	31	Convective precursors	18.4
RF13	6/11/2013	6.2	34	Convective precursors	12.2
RF14	6/12/2013	5.9	33	Convective precursors	6.3
RF15	6/14/2013	6.4	33	Convective precursors	-0.1
	Total:	94.1	429		

Allocated	
Research:	80
Test:	6
Recon:	8
Total:	94

Remaining:	-0.1

Sondes	
Allocated:	430
Remaining:	1

Preparation and Upload

- RAF started cabin preparation on 15 April
- AVAPS installed and ground tested; more extensive testing of AVAPS preceded MPEX in SAANGRIA-TEST earlier
- Payload was minimal, with AVAPS, MTP and a number of Mission Coordinator display stations
- In preparation for MPEX RAF discovered that Xcelis OpsVue was not going to work onboard the GV over Satcom
- Changed ops plan to have a dedicated Flight Coordinator onboard and a dedicated Ground Coordinator on fast LAN at Jeffco

Data System

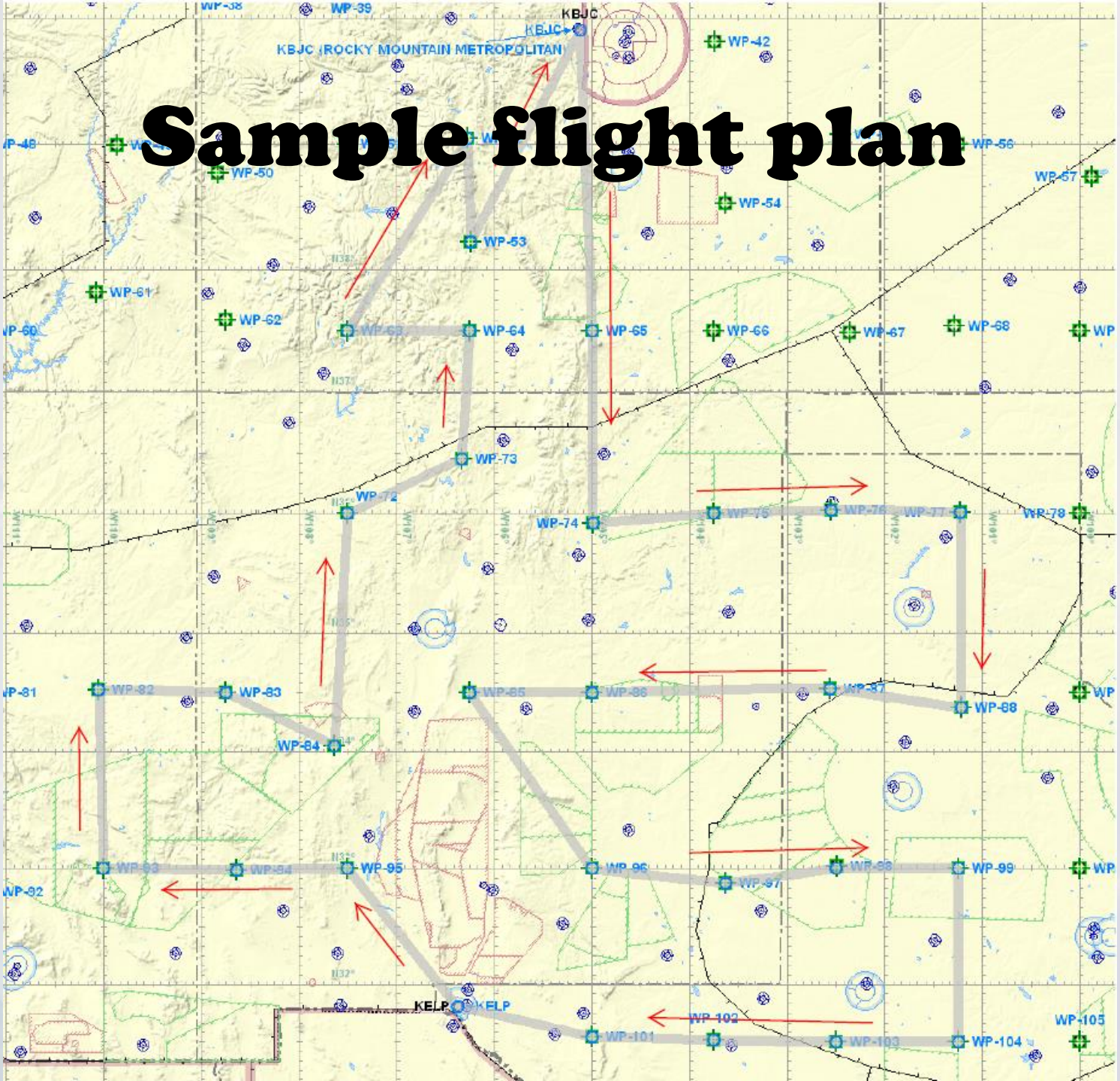
- Overall performed well
- Minimal sensor payload, standard sensors only
- Satcom operated well and was critical for RT aircraft operation coordination
- Chat was an essential tool
- In the one instance of Satcom dropout telephone call was used to coordinate drops, worked well

Instrumentation

- Dewpointers exhibited more instability than expected from conditions
- MTP performed well
- AVAPS performed within expectations (<10% fast falls) – separate discussion, better performance desired
- Two instances of sonde jamming, one led to aborted flight; resolved with engineering changes

Flight Planning

- Pre-project FAA briefings, extensive preparations by RAF flight ops
- Obtained FAA LNO for dropsonde operations
- Prepared 107 drop points, deconflicted for ground interference
- Further deconflicted after project start when frequent FFs were encountered
- PI planning meetings attended by FPS PM who assisted with communications and pre-flight notifications


Sample flight plan
KBJC
KBJC
KBJC (ROCKY MOUNTAIN METROPOLITAN
WP-38
WP-39
WP-42
WP-48
WP-50
WP-53
WP-54
WP-56
WP-57
WP-60
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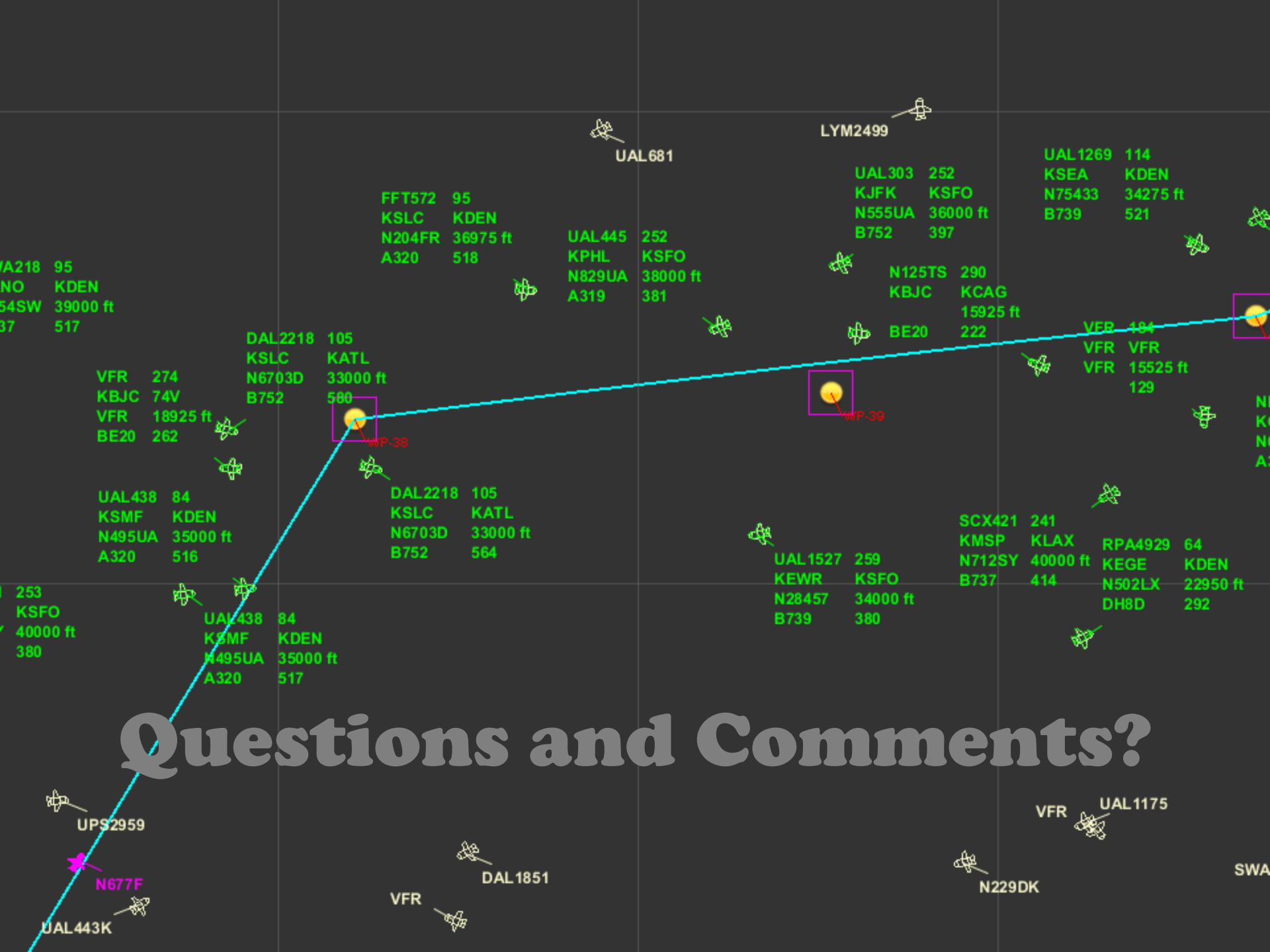
WP-85
WP-86
WP-87
WP-88
WP-92
WP-93
WP-94
WP-95
WP-96
WP-97
WP-98
WP-99
KELP
KELP
WP-101
WP-102
WP-103
WP-104
WP-105

Operations

- Night operations with back to back flights: two consecutive possible, three – maybe
- 3 AM take-offs was the only way to enable drops in busy areas
- Constant attention required from Ground Coordinator and both Flight Coordinator and AVAPS Operator – high pressure ops
- Real time dialog with the pilots: turn-arounds, re-drops, aborts, etc.
- Fueling: advance arrangement for after hour support
- Some adjustment to drop points based on weather avoidance

Lessons learned

- **Dropping sondes over land: possible with advanced preparations but involves a lot of careful attention**
- **Consecutive flights during night operations: assessment of limitations was fairly accurate, will refine more**
- **Redundant communication channels a must**



Questions and Comments?