

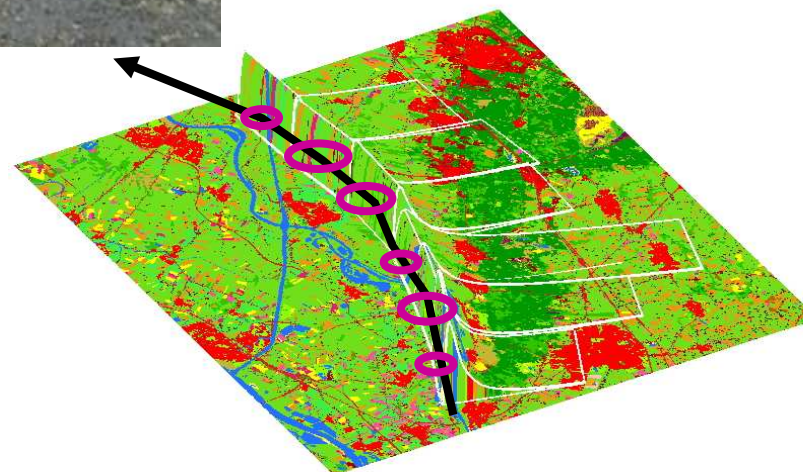
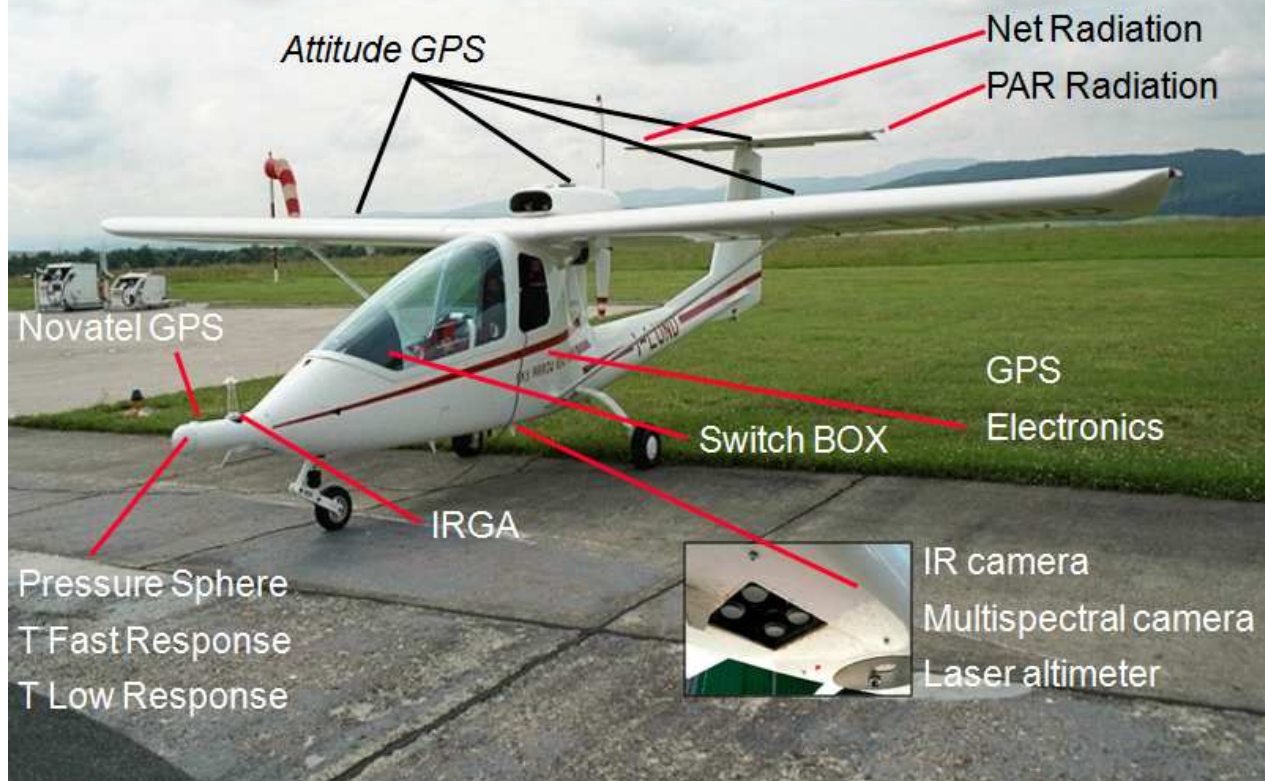
SkyArrow operations

B. Gioli, A. Zaldei, P. Toscano, E. Magliulo
CNR IBIMET & ISAFOM

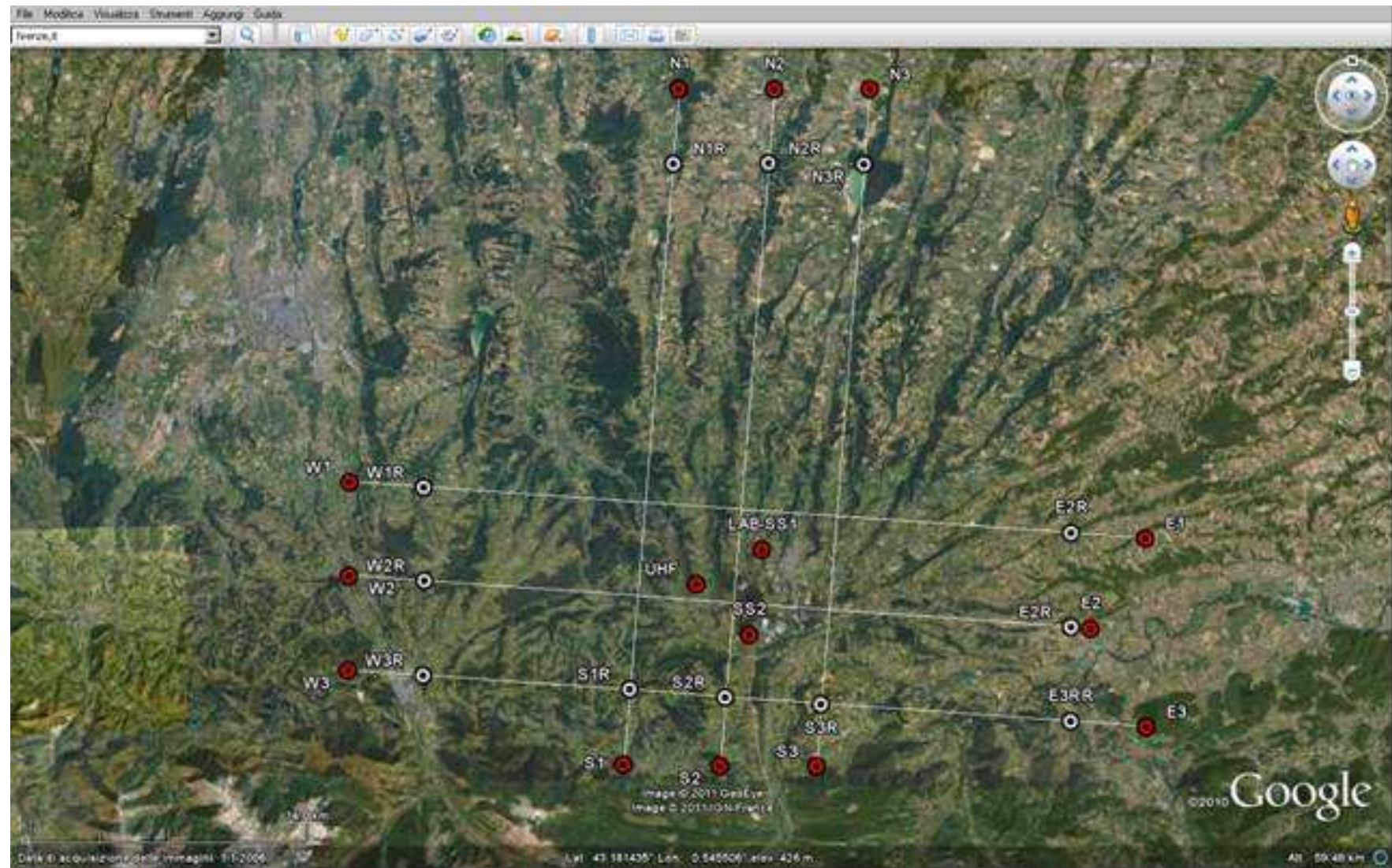


BLLAST Workshop
Firenze, Feb. 6-7, 2012

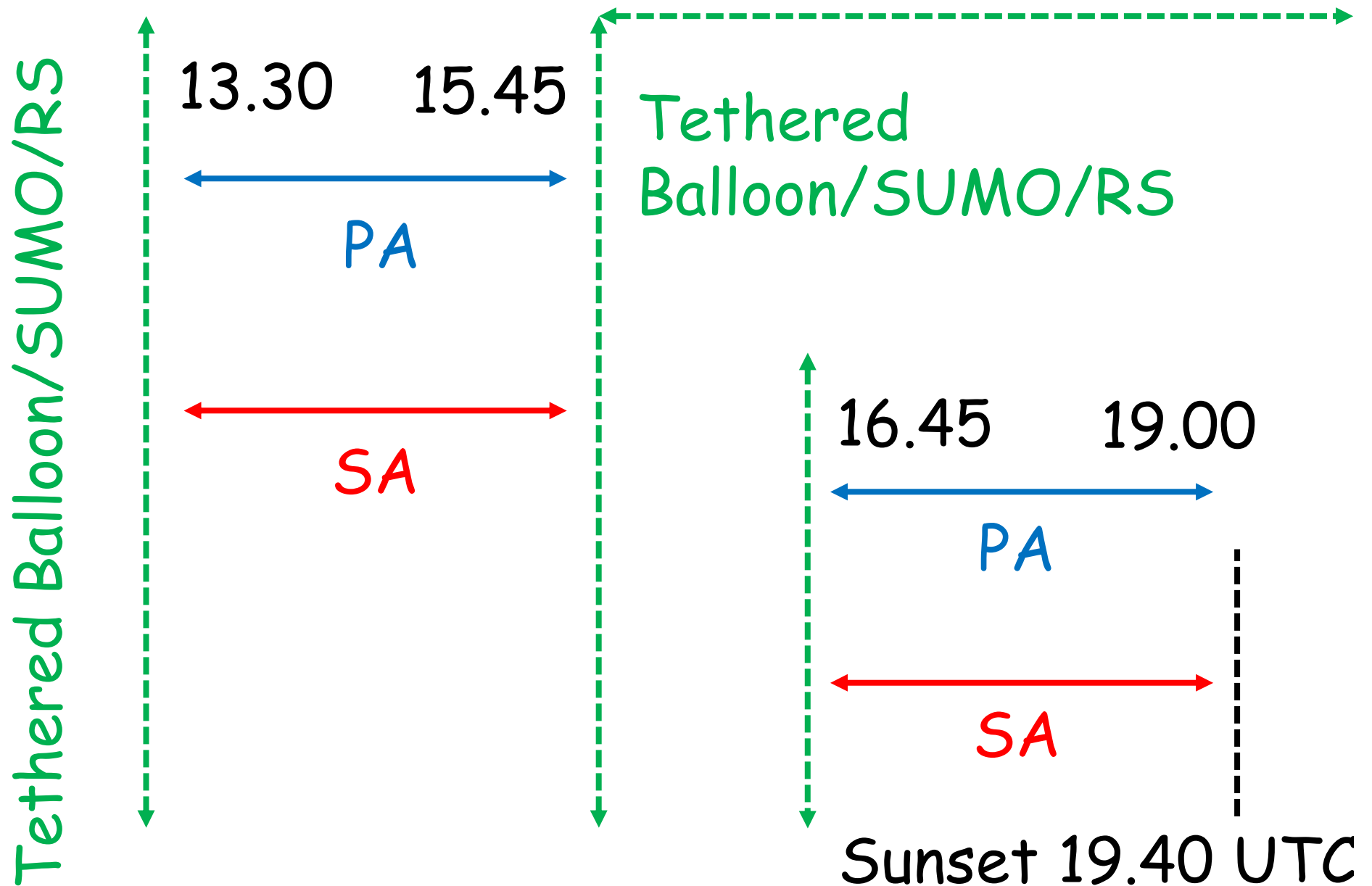
Sky Arrow ERA (Environmental Research Aircraft)



Study area

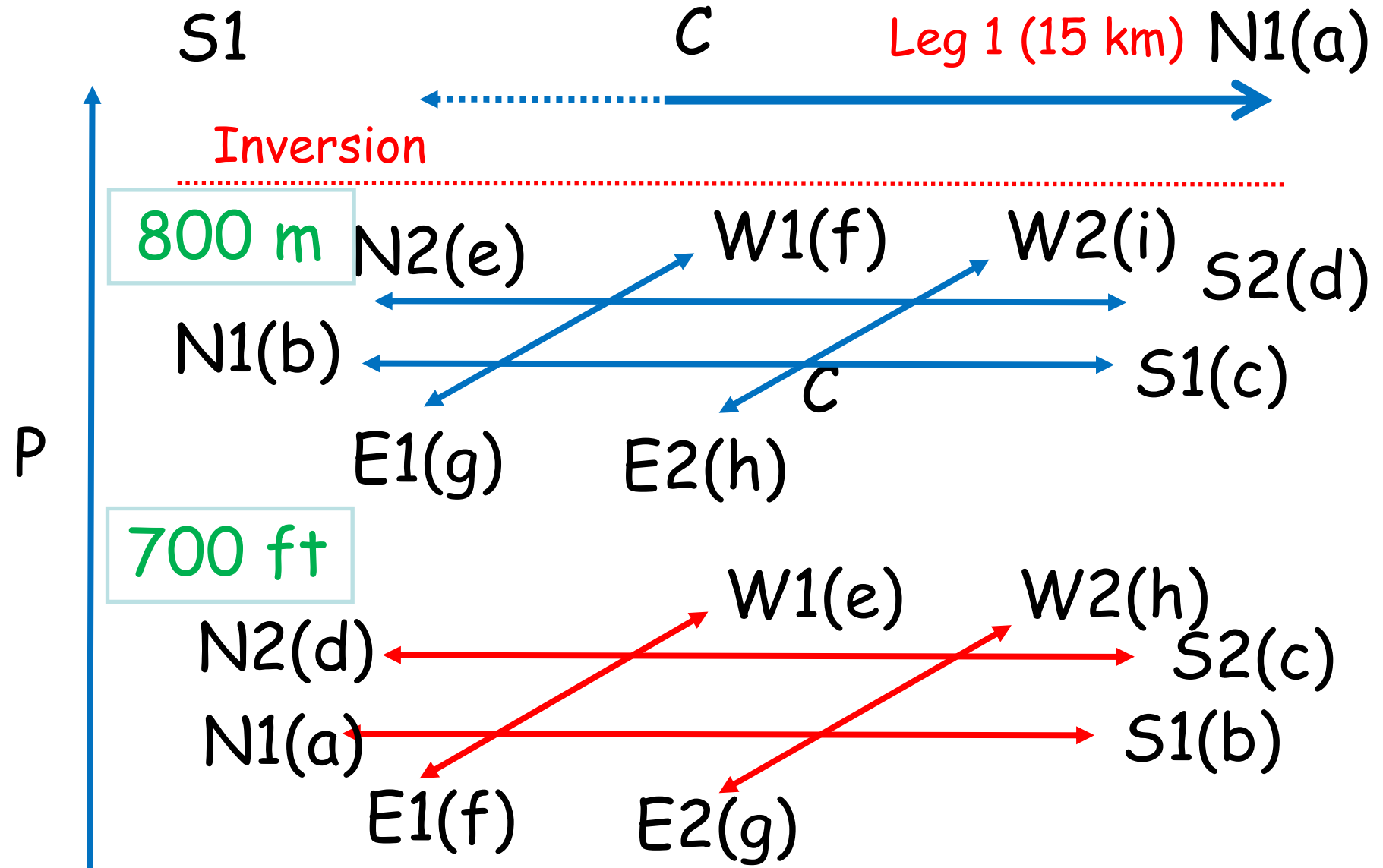


Schedule (UTC) IOP-02 (19/06/11)



Flight strategy (from 13:30-15:45 UTC)

N1S1-E1W1



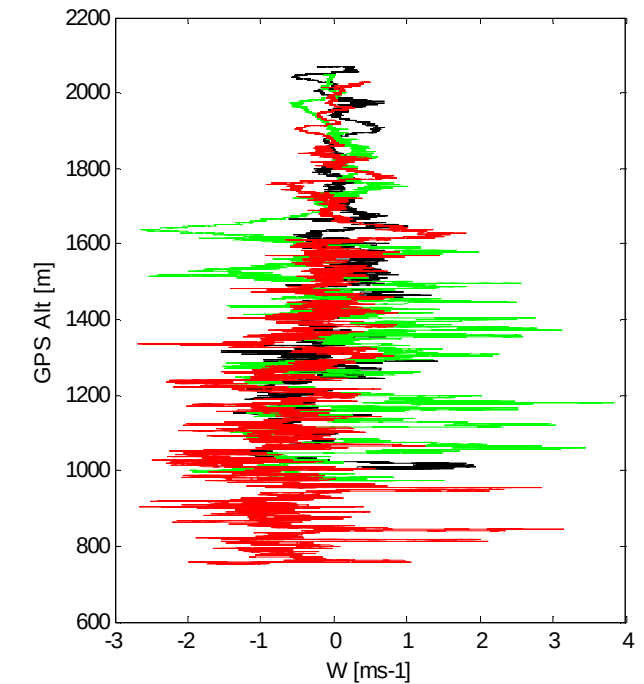
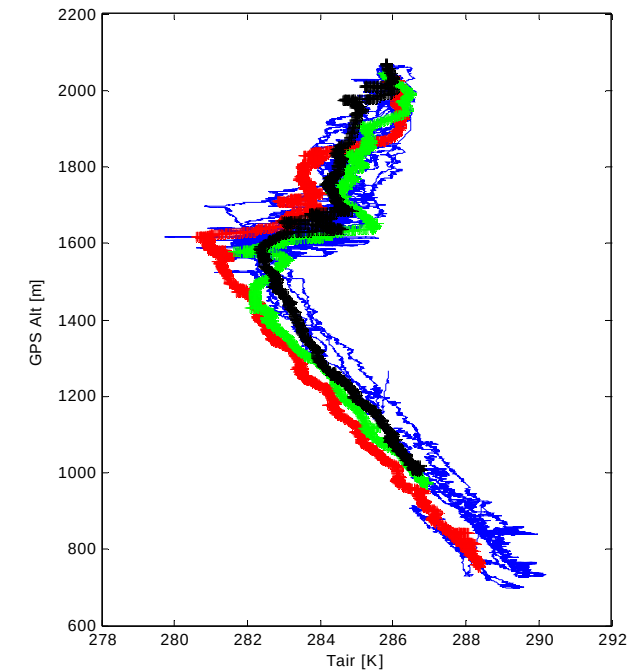
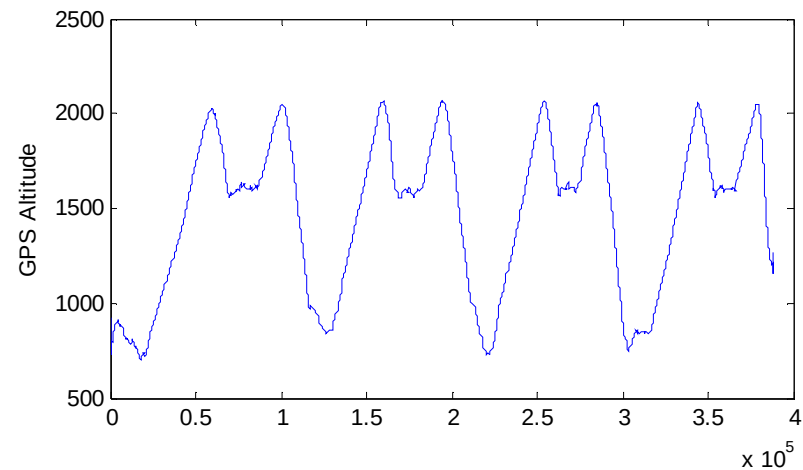
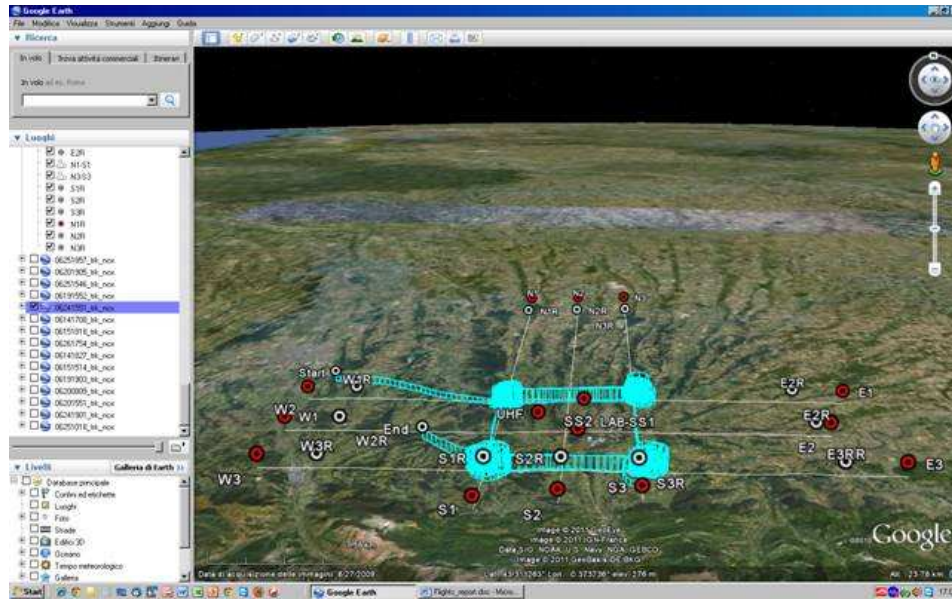
1. Summary Table of flights

'PA' means the flight is coordinated with the Piper Aztec flying at the same time
Green flights are part of the EUFAR BLLATE projects

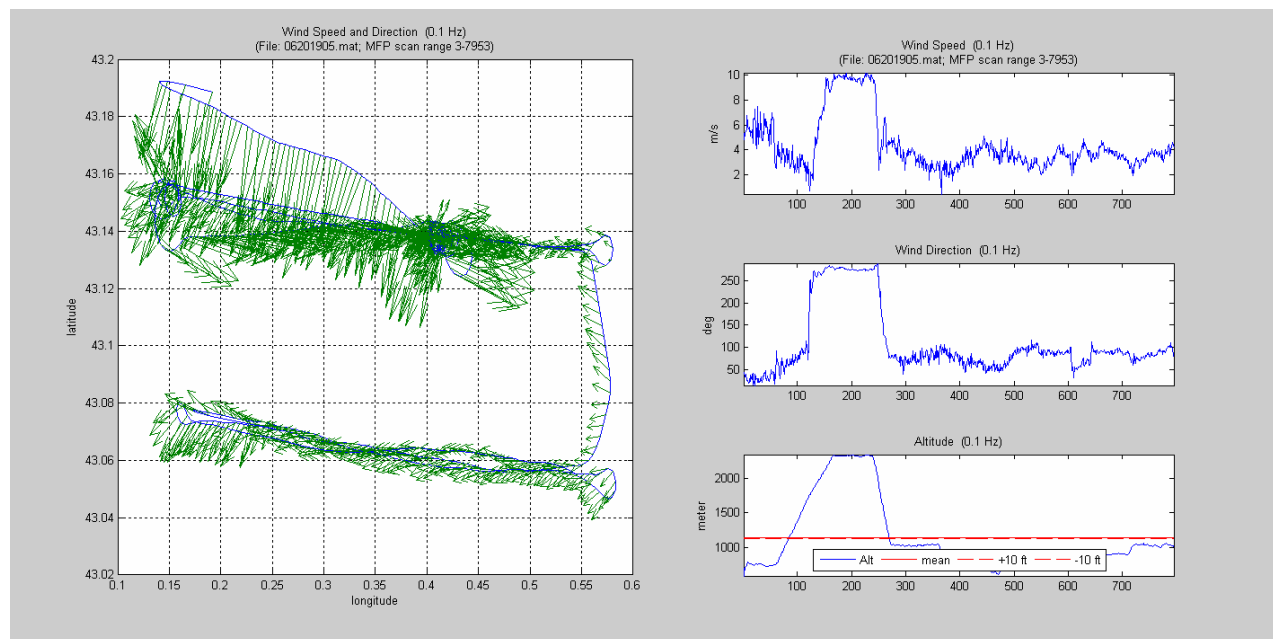
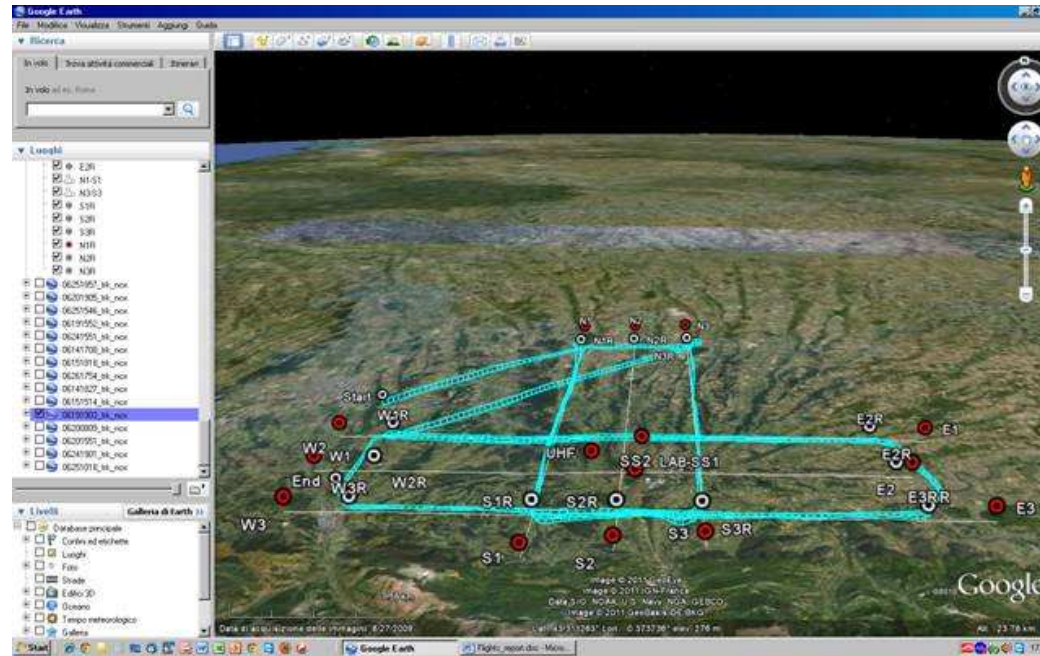
Date	Filename	Time UTC	Duration	Type of flight	Notes
June 14	06141708	15 UTC	0.40	pre-IOP flight	OK, aborted aircraft problem, some profile data
June 14	06141827	16.30 UTC	1.45	pre-IOP flight	OK
June 15	06151514	13.30 UTC	2.00	IOP 1	OK (PA)
June 15	06151818	16.45 UTC	2.00	IOP 1	OK (PA)
June 19	06191552	13.30 UTC	2.20	IOP 2	OK (PA)
June 19	06191903	16.45 UTC	2.20	IOP 2	OK (PA)
June 20	06200809	05.45 UTC	1.00	calibration flight	OK
June 20	06201551	13.30 UTC	1.40	IOP 3	OK (PA), aborted at half flight (operator sick)
June 20	06201905	16.45 UTC	2.30	IOP 3	OK (PA)
June 24	06241551	13.30 UTC	2.20	profile flight (IOP4)	OK
June 24	06241901	16.45 UTC	2.20	profile flight (IOP4)	OK
June 25	06251018	08.00 UTC	1.10	aircraft inter-calibration flight	OK (PA)
June 25	06251546	13.30 UTC	2.00	IOP 5	OK (PA)
June 25	06251857	16.45 UTC	2.00	IOP 5	OK (PA)
June 26	–	12.30 UTC	2.30	IOP 6	PC power failure (no data)
June 26	06261754	15.45 UTC	2.30	IOP 6	OK (PA coordination)

15 flights total

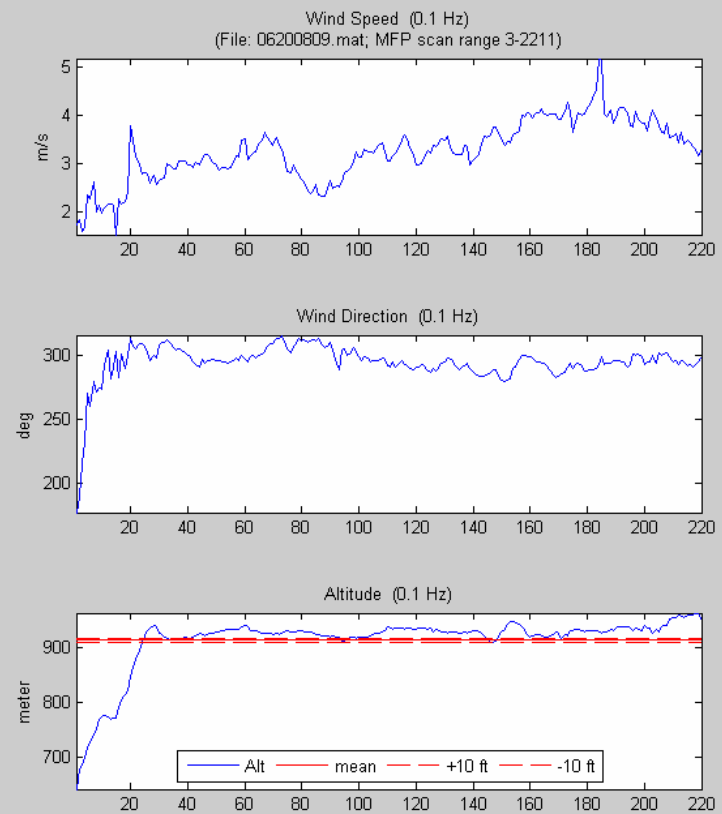
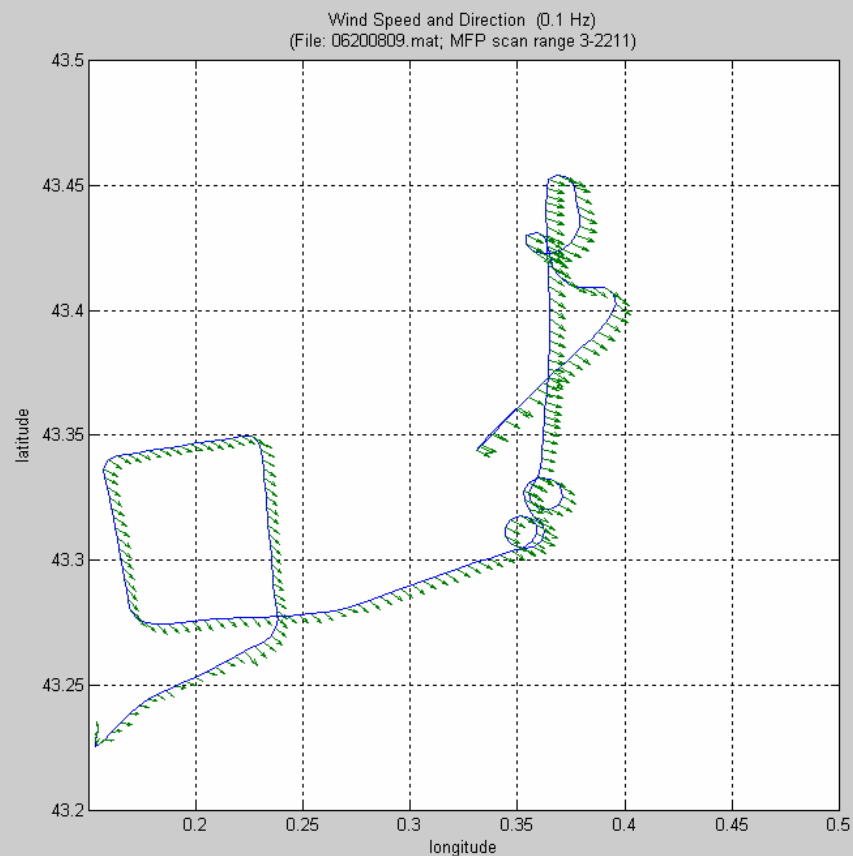
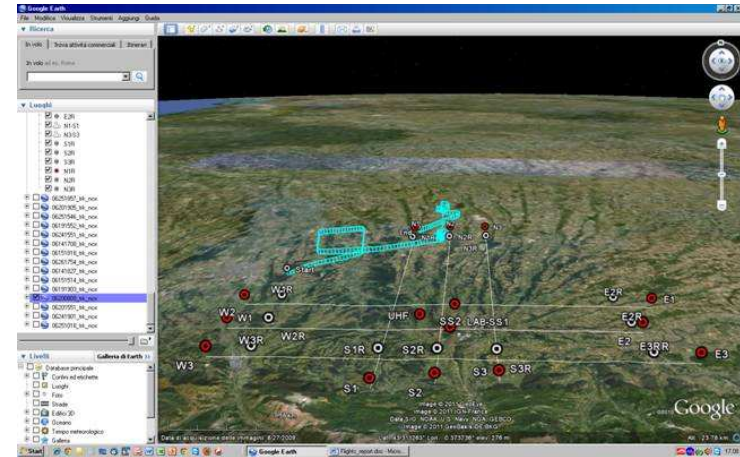
Example: profile flight



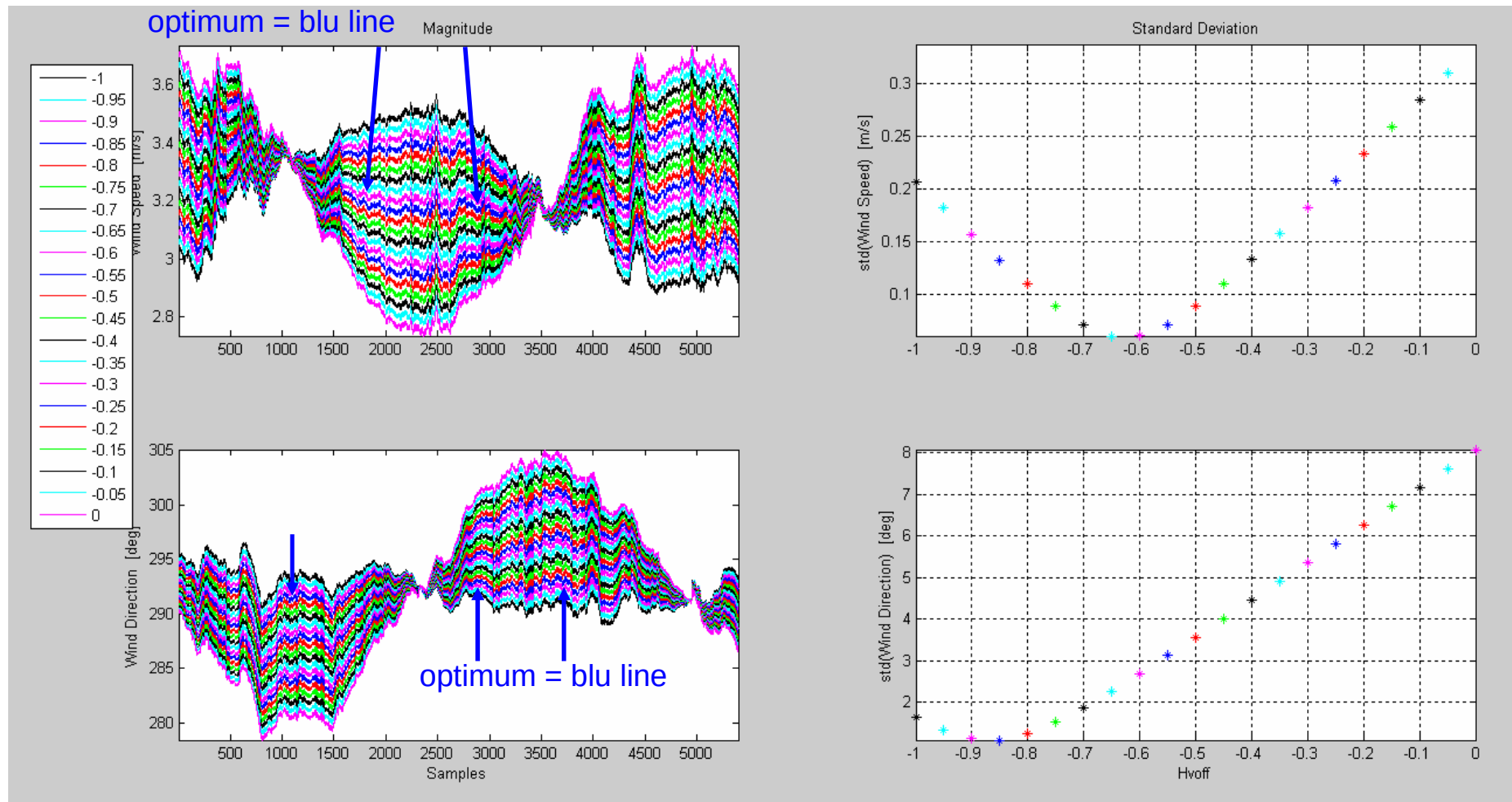
Example: transect flight



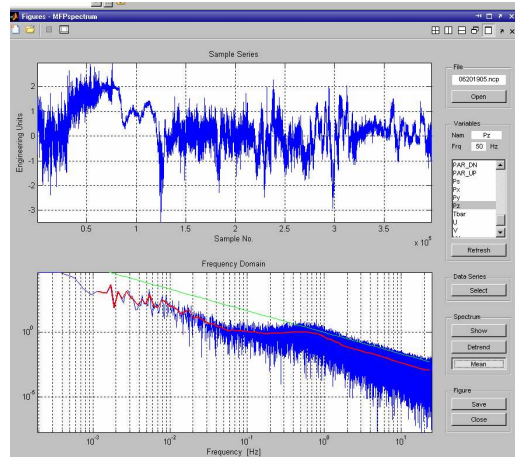
Example: Calibration flight



Example of calibration manoeuvre (circle right) wind computation performance

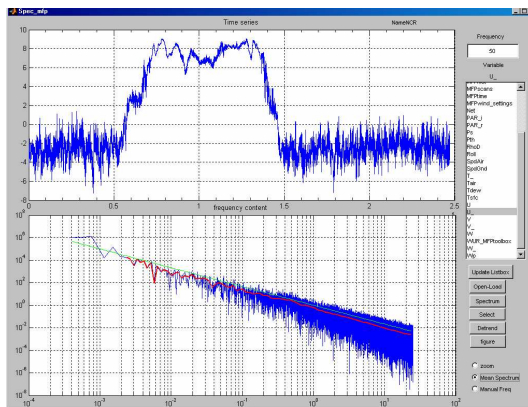
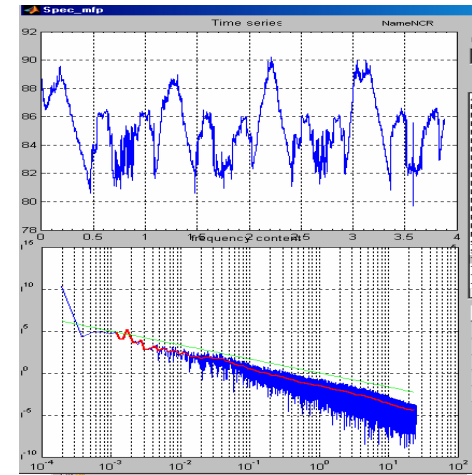


spectral analysis



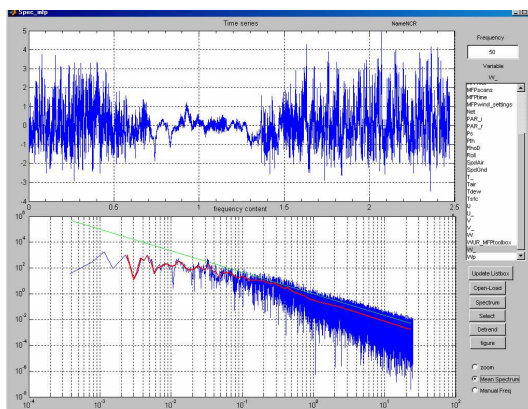
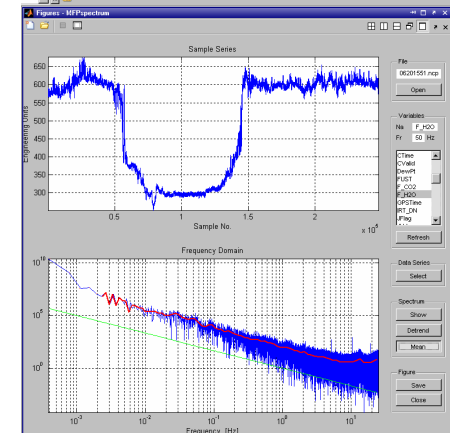
Pz

T



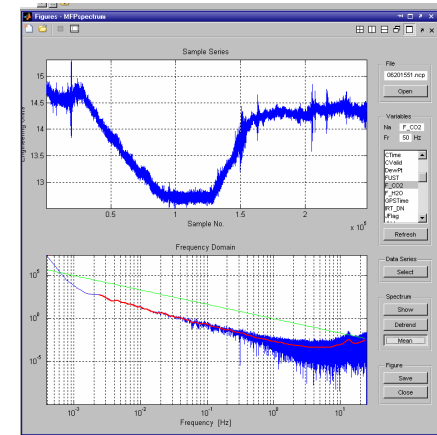
U

H2O



W

CO2



Data organization

High frequency processed data

1 flight → 1 file (example 06141708.nc & 06141708.mat)

high frequency data (50 Hz), no filtering

QC flags for specific variables (wind, temperature)

NetCDF + MATLAB format

SkyArrow Data info.doc

Additional data:

1. transect statistics (skyarrow_transects.out)
2. transect and profiles markers

File name	Label	Date	Time_START	Time_STOP	Start	End	Lat1	Lon1	Lat2	Lon2
06141027	P1-M2_TR	2011/6/14	16 0525	16 0413	1578	2077	43 14649460	0 16666128	43 33378108	0 37468538
06141027	M2-S2R_L4	2011/6/14	16 05720	17 03219	2233	2862	43 33278049	0 37578303	43 07989793	0 34817296
06141027	S2R-M2_L3	2011/6/14	17 05058	17 25302	2968	3657	43 07582668	0 34240083	43 33349598	0 37340543
06141027	M2-S2R_L2	2011/6/14	17 29331	17 48219	3803	4482	43 33310277	0 38032034	43 06884155	0 36007522
06141027	S2R-M2_L1	2011/6/14	17 49525	17 69469	4830	5247	43 07132728	0 35156425	43 33251000	0 38163344
06151514	P1-E1_TR	2011/6/15	13 57247	13 70088	1978	2467	43 14490734	0 35087452	43 31530020	0 39920029
06151514	E1-W1R_L4	2011/6/15	13 73497	13 85636	2563	3359	43 14632918	0 40136579	43 13975669	0 16191872
06151514	W1R-E1_L3	2011/6/15	13 99747	14 24230	3508	4392	43 13994227	0 46094556	43 15306530	0 59967988
06151514	E1-W1R_L2	2011/6/15	14 26720	14 48858	4479	5275	43 14724371	0 40034571	43 14998738	0 16168442
06151514	W1R-E1_L1	2011/6/15	14 52358	14 75775	5402	6244	43 14987888	0 41610570	43 14623277	0 54203475
06151818	P1-W1_TR	2011/6/15	16 53220	16 70380	1598	2222	43 14288655	0 38116471	43 15672834	0 12009083
06151818	W1-E1_L3	2011/6/15	16 74747	16 96330	2373	3149	43 15667626	0 4345349	43 13109670	0 60138100
06151818	E1-W1_L2	2011/6/15	17 05858	17 29886	3493	4357	43 12070548	0 59918132	43 15196133	0 12779102
06151818	W1-E1_L1	2011/6/15	17 34942	17 60719	4540	5467	43 16155246	0 12727202	43 12775863	0 60146391
06151818	E1-W1_L1	2011/6/15	17 65108	17 90025	5626	6522	43 13070116	0 59930549	43 14822249	0 25103156
06191552	M1R-S1R_L1	2011/6/19	13 78664	13 96080	501	1127	43 30016574	0 30323920	43 06988576	0 29899068
06191552	S2R-W2R_L1	2011/6/19	13 98692	14 16080	1222	1847	43 06308288	0 33675526	43 30024799	0 27176042
06191552	M1R-S1R_L1	2011/6/19	14 21081	14 38863	2028	2640	43 30143183	0 31598366	43 06741989	0 29160775
06191552	S2R-W2R_L1	2011/6/19	14 42469	14 60524	2798	3447	43 06324617	0 44494980	43 29992266	0 27454352
06191552	W1R-E1R_L1	2011/6/19	14 80636	15 00219	4272	4876	43 15422351	0 16174108	43 15196253	0 55495539
06191552	E2R-W2R_L1	2011/6/19	15 03914	15 25219	5010	5776	43 09444951	0 55536314	43 11515919	0 16249496
06191552	W1R-E1R_L1	2011/6/19	15 29747	15 49163	5940	6638	43 15544898	0 16163706	43 13262330	0 55502244
06191552	E2R-W2R_L1	2011/6/19	15 52664	15 75080	6765	7571	43 09356405	0 55520153	43 11662004	0 16117389
06191903	M1R-S1R_L1	2011/6/19	16 97442	17 13441	474	1049	43 30014481	0 30902422	43 06801405	0 28544805
06191903	S2R-W2R_L1	2011/6/19	17 19497	17 35744	1268	1852	43 06305501	0 33610722	43 29401332	0 49341612
06191903	M1R-S1R_L1	2011/6/19	17 42386	17 58747	2092	2680	43 30009866	0 31605681	43 06772672	0 28750714
06191903	S2R-W2R_L1	2011/6/19	17 60331	17 82524	2918	3536	43 06321621	0 40071793	43 29909078	0 43796211
06191903	W1R-E1R_L1	2011/6/19	18 03775	18 23413	4302	5008	43 15917759	0 16132420	43 13208662	0 55541662
06191903	E2R-W2R_L1	2011/6/19	18 29497	18 50524	5228	5984	43 05487530	0 15262196	43 07584761	0 16279338
06191903	W1R-E1R_L1	2011/6/19	18 56719	18 76497	6208	6919	43 15424269	0 16172777	43 13293450	0 55486808
06191903	E2R-W2R_L1	2011/6/19	18 78224	18 99549	7029	7883	43 06462624	0 33610722	43 29401332	0 49341612

File name	Label	Start	End	Lat1	Lon1	Lat2	Lon2
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06191552	S2R-W2R_L1	1222	1848				
06191552	M1R-S1R_L1	2028	2661				
06191552	S2R-W2R_L1	2798	3448				
06191552	W1R-E1R_L1	4172	4877				
06191552	E2R-W2R_L1	5010	5777				
06191552	W1R-E1R_L1	5940	6639				
06191552	E2R-W2R_L1	6765	7572				
06191903	M1R-S1R_L1	474	1050				
06191903	S2R-W2R_L1	1268	1853				
06191903	M1R-S1R_L1	2092	2681				
06191903	S2R-W2R_L1	2918	3537				
06191903	W1R-E1R_L1	4302	5009				
06191903	E2R-W2R_L1	5228	5985				
06191903	W1R-E1R_L1	6208	6920				
06191903	E2R-W2R_L1	7123	7883				