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Observational analysis of the daily cycle of the planetary boundary layer in the central Amazon during a non-El Niño year and El Niño year (GoAmazon project 2014/5)

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Tabela S1 Student t-test statistics calculated to all different instruments of PBL height in comparison to RS during IOP1 with 2 degrees of freedom. Pearson's correlation coefficient is represented by r, t_c is the critical value and p-value is the probability value.

IOP1 (February 15 to March 31, 2014)															
Hours	**02 LT**			**08 LT**			**11 LT**			**14 LT**			**20 LT**		
Sensors	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*
Ceilometer	0.95	1.679	0.27	0.90	1.301	0.54	0.97	2.014	0.75	0.97	2.014	0.12	0.95	1.679	0.19
Lidar	-X-	-X-	-X-	0.95	1.679	0.68	0.97	2.014	0.70	0.95	1.679	0.35	-X-	-X-	-X-
MWR	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-
RWP	0.90	1.301	0.44	0.80	0.850	0.13	0.90	1.301	0.22	0.95	1.679	0.47	0.90	1.301	0.37
Sodar	0.75	0.680	0.23	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	0.80	0.850	0.17

* Confidence interval considered: 95% ($\propto$ = 0.05). In order to have statistical significance, the tests of null hypothesis must have p-value > $\propto$ = 0.05.

"X" represents where absences measurements occurred.

Tabela S2 Student t-test statistics calculated to all different instruments of PBL height in comparison to RS during IOP2 with 2 degrees of freedom. Pearson's correlation coefficient is represented by r, t_c is the critical value and p-value is the probability value.

IOP2 (September 1 to October 15, 2014)															
Hours	**02 LT**			**08 LT**			**11 LT**			**14 LT**			**20 LT**		
Sensors	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*
Ceilometer	0.95	1.679	0.25	0.97	2.014	0.53	0.99	2.412	0.90	0.99	2.412	0.85	0.90	1.301	0.20
Lidar	-X-	-X-	-X-	0.95	1.679	0.49	0.90	1.301	0.60	0.95	1.679	0.47	-X-	-X-	-X-
MWR	0.95	1.679	0.67	0.95	1.679	0.45	0.90	1.301	0.25	0.90	1.301	0.38	0.95	1.679	0.32
RWP	0.80	0.850	0.22	0.95	1.679	0.46	0.90	1.301	0.41	0.90	1.301	0.32	0.75	0.680	0.12
Sodar	0.80	0.850	0.17	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	0.90	1.301	0.56

* Confidence interval considered: 95% ($\propto = 0.05$). In order to have statistical significance, the tests of null hypothesis must have p-value > $\propto = 0.05$.

"X" represents where absences measurements occurred.

Tabela S3 Student t-test statistics calculated to all different instruments of PBL height in comparison to RS during IOP3 with 2 degrees of freedom. Pearson's correlation coefficient is represented by r, t_c is the critical value and p-value is the probability value.

IOP3 (February 15 to March 31, 2014)															
Hours	**02 LT**			**08 LT**			**11 LT**			**14 LT**			**20 LT**		
Sensors	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*
Ceilometer	0.97	2.014	0.62	0.80	0.850	0.88	-X-	-X-	-X-	0.95	1.679	0.47	0.97	2.014	0.54
Lidar	-X-	-X-	-X-	0.95	1.679	0.35	-X-	-X-	-X-	0.90	1.301	0.47	-X-	-X-	-X-
MWR	0.80	0.850	0.39	0.90	1.301	0.42	-X-	-X-	-X-	0.80	0.850	0.36	0.70	0.528	0.33
RWP	0.80	0.850	0.25	0.90	1.301	0.33	-X-	-X-	-X-	0.80	0.850	0.27	0.90	1.301	0.31
Sodar	0.70	0.528	0.10	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	0.70	0.528	0.11

* Confidence interval considered: 95% ($\propto = 0.05$). In order to have statistical significance, the tests of null hypothesis must have p-value > $\propto = 0.05$.

"X" represents where absences measurements occurred.

Tabela S4 Student t-test statistics calculated to all different instruments of PBL height in comparison to RS during IOP4 with 2 degrees of freedom. Pearson's correlation coefficient is represented by r, t_c is the critical value and p-value is the probability value.

IOP4 (September 1 to October 15, 2015)															
Hours	**02 LT**			**08 LT**			**11 LT**			**14 LT**			**20 LT**		
Sensors	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*	r	$\pm t_c$	p-value*
Ceilometer	0.97	2.014	0.35	0.97	2.014	0.61	-X-	-X-	-X-	0.99	2.412	0.82	0.99	2.412	0.27
Lidar	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-
MWR	0.90	1.301	0.59	0.80	0.850	0.50	-X-	-X-	-X-	0.80	0.850	0.42	0.99	2.412	0.39
RWP	0.80	0.850	0.44	0.90	1.301	0.54	-X-	-X-	-X-	0.70	0.528	0.32	0.97	2.014	0.38
Sodar	0.80	0.850	0.21	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	-X-	0.80	0.850	0.17

* Confidence interval considered: 95% ($\propto = 0.05$). In order to have statistical significance, the tests of null hypothesis must have p-value > $\propto = 0.05$.

"X" represents where absences measurements occurred.

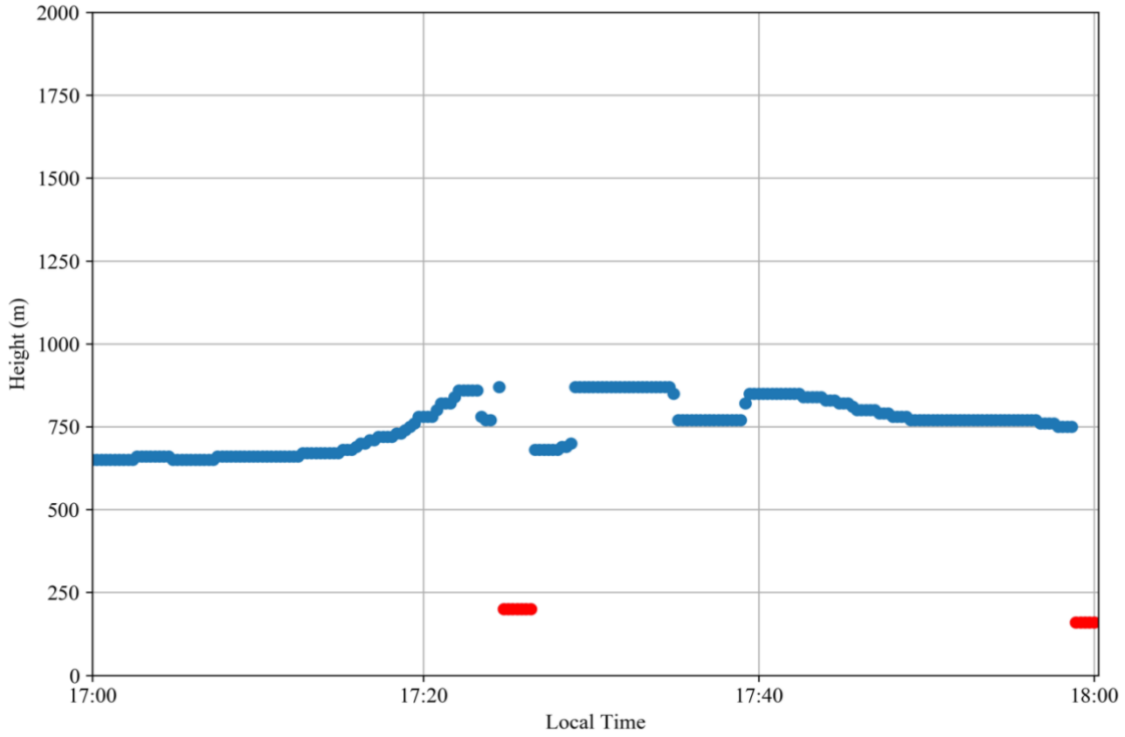

Figure S1 Height of the PBL for the transition from day to night, with the blue dots referring to CBL and the red dots referring to NBL.

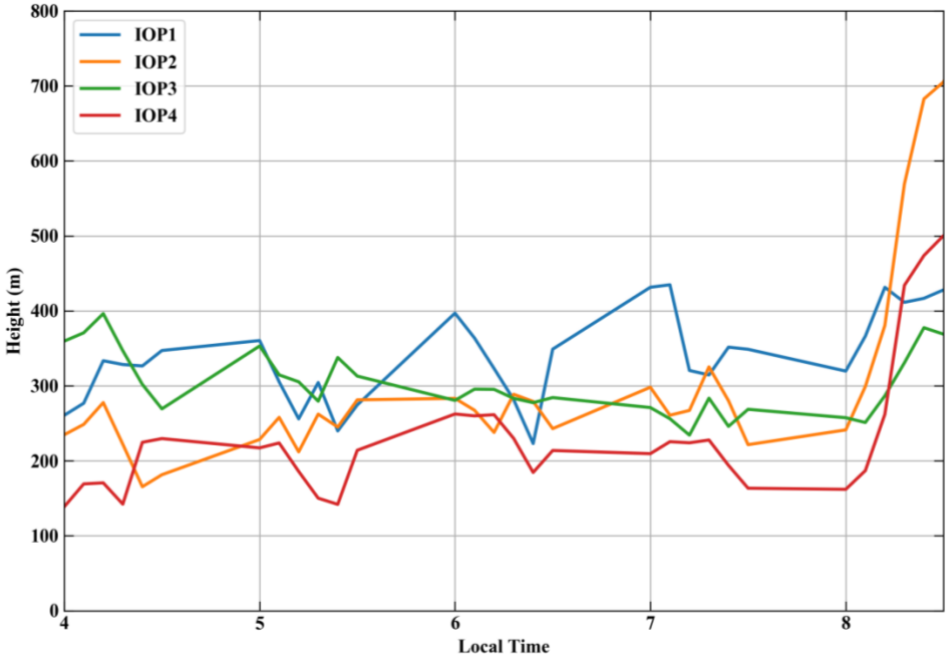

Figure S3 Transition from night to day PBL of the ceilometer for 4 IOPs, averaging every 10 minutes.

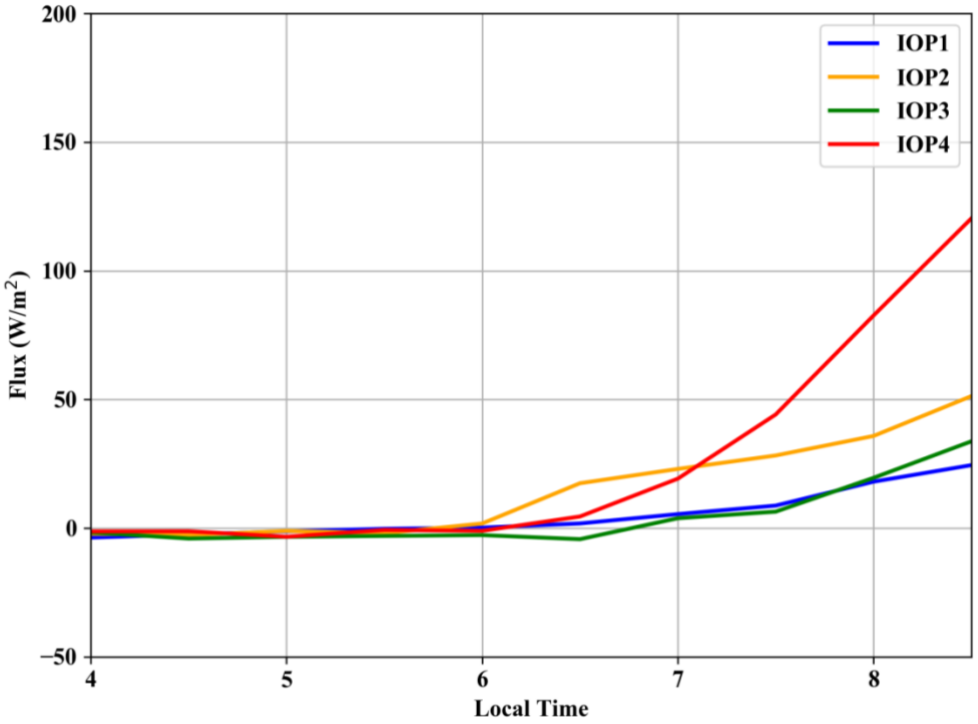

Figure S4 Average of the sensible heat flux (H) (W m-2) during transition from night to day of the 4 IOPs.