

### IPHEX Citation Mission Summary

Date	Sortie Number	TO (UTC)	L (UTC)	Notes
5/09/2014	IPHEX-1	19:00	21:50	Step up/step down profile in lightly precipitating layered cloud system. Flight leg temperatures ranged from +2C to -7C.
5/10/2014	IPHEX-2	15:53	17:58	Sampled weak convection west of Asheville. Step climb profile from below the melting layer, 9,000 feet, to above the melting layer, 14,000 feet. Rain below cloud, with a mixed region of ice, supercooled water, and mixed-phase cloud near and above the freezing level.
5/12/2014	IPHEX-3	12:24	15:24	Offshore ACE mission. Sampled low cumulus field, then lower anvil cloud plus a few new towers at 18-22,000'. Coordinated with ER-2.
5/15/2014	IPHEX-4	13:08	16:48	Sampled convection east of Asheville, NC. Sampled along a North-South line from 11,000 ft to 19,000 ft. Sampled along a second line near Asheville from 9,000 ft to 15,000 ft. Rain above freezing and mixed phase below freezing.
5/16/2014	IPHEX-5	12:52	15:57	Offshore mission coordinated with ER-2. No lightning in storm. Sampled from 11,000 to 23,000 ft. Temperature of ~ 0.0 C at 13,000 ft. Sampled in rain warmer than zero, below zero sampled columns and aggregates, few needles and some interesting round images at cold temperature.
5/16/2014	IPHEX-6	17:11	19:50	Offshore mission to sample line of storms. Sampled on the west side of line from 15,000 to 19,000 ft. After sampling the line, returned to Asheville. On descent, into Asheville, sample clouds with some icing from 11,000 to 9,000 ft.
5/18/2014	IPHEX-7	11:12	14:35	Sampling on East side of Mountains near NPOL.
5/19/2014	IPHEX-8	09:25	12:49	Flight off-shore to under-fly GPM Satellite, with ER-2 Aircraft. After sampling the cloud for the overpass, processed to south to sample cumulus clouds, from 7,300 ft down to 2,000 ft.
5/23/2014	IPHEX-9	14:30	14:59	Sampled system that moved over the mountains in the morning. Sampled high crystal concentration. No liquid water in the clouds. Sampled a lot at 19,000 ft.
5/23/2014- 5/24/2014	IPHEX-10	22:18	01:14	Sampled a system that did not move as forecast in South Carolina. Mainly sampled in the anvil (east of the main updraft region) between 18,000 and 21,000 ft
5/25/2014	IPHEX-11	19:17	22:36	Flight to sample storms south of Asheville between Knoxville, TN and the NPOL radar site.
5/26/2014	IPHEX-12	20:12	22:43	Sampled mostly liquid water clouds over mountains and near NPOL.
5/27/2014	IPHEX-13	13:57	15:44	Sampling over mountains near Asheville. Good mix of hydrometers, some of the largest drops sampled during

				the project, some pure ice and some ice with liquid water.
5/28/14	IPHEX-14	13:24	16:35	Sample cumulus congestus off coast on a line with approximate 055 heading about 25 nm legs at altitudes of 14, 12, 10, 8, 5, 6, 10, 15, 17 kft. After sampling first storm system, moved to west ~15 nm and did altitudes of 10,000 and 9,000 ft. All water (round images) except at start of 14 km leg and during the high altitudes at the end of first leg sampling.
5/29/2014	IPHEX-15	17:35	20:51	Sampled clouds over mountains coordinated with ER2
6/05/2014	IPHEX-16	07:26	09:52	IPHEX mission in coordination with ER2 sampling clouds west of Asheville over the mountains and outside of the primary study area. Legs flown at various altitudes from 12,000 ft. to 25,000 ft.
6/06/2014	IPHEX-17	18:34	20:10	Flew on Cumulus congestus clouds over the Achieve site. Started going up and down the valley centered on Achieve but ended up doing repeated cloud penetrations at altitudes between 9,000 and 12,000 ft. right around the Achieve site. cloud tops and numbers were decreasing with time.
6/08/2014	IPHEX-18	18:17	21:09	Flew east of Charlotte in coordination with the ER2 at the time of a satellite overpass. Heavy rain at lower altitudes and large aggregates above the melting altitude. Some difficulty in getting clearance from ATC to get to desired areas and altitudes.
6/11/2014	IPHEX-19	16:52	20:50	Coordinated mission with the ER2 at the time of a satellite overpass. Citation flew at altitudes varying from 8,500 ft. to 21,000 ft. generally along the western side of a line of storms that were quite strong. Most of the time, the Citation was in precipitation along the line of cells.
6/12/2014	IPHEX-20	16:14	19:51	Coordinated mission with the ER@ over the mountains near the Achieve trailer. Legs were flown through cumulus congestus at altitudes varying between 9,000 and 20,000 ft. Ice phase precipitation was observed and moderate precipitation was seen near cloud base.