

Evaluation of Field-Collected Drifter and In Situ Fluorescence Data Measuring Subsurface Dye Plume Advection/Dispersion and Comparisons to High-Frequency Radar-Observation System Data for Dispersed Oil Transport Modeling

APPENDIX E – WIND DATA

**A Final Report Submitted to
The Coastal Response Research Center**

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Appendix E. Wind Data

This appendix contains wind data for each of the dye experiments.

E.1 Approach and Methods

Data provided by the National Climatic Data Center (NCDC) online were downloaded for each experiment (http://seaboard.ndbc.noaa.gov/maps/Southwest_inset.shtml for San Diego and http://seaboard.ndbc.noaa.gov/station_page.php?station=46026 for San Francisco area). Wind stations near each experimental site are listed in Table E-1. In addition, 1.7 km resolution hourly nowcasts of the wind field at 10m produced by the Coupled Ocean/Atmosphere Mesoscale Prediction System (COAMPS®, <http://www.nrlmry.navy.mil/coamps-web/web/home>), were also evaluated. Four nested grids ranging from 45 km to 1.7 km over Southern California are used in producing nowcasts on a Lambert Conformal Conic projection.

Table E-1. Summary of wind station information and locations.

Wind Station Name	Location	Latitude Longitude	Dates	Data Source	Height of Anemometer (m)
LJPC1	La Jolla, CA Scripps Institute of Oceanography Pier	32.86667 N 117.2567 W	November 5, 2005 March 21-22, 2006 June 21-22, 2006 November 1-2, 2006	National Climatic Data Center -NOAA	20.2 (above sea level)
46086	San Clemente Basin (Buoy)	32.49833 N 117.99916 W	November 5, 2005 March 21-22, 2006 June 21-22, 2006 November 1-2, 2006	National Climatic Data Center -NOAA	5 (above sea level)
46026	San Francisco (Buoy), 18NM West of San Francisco, CA	37.75 N 122.82 W	August 9, 2006	National Climatic Data Center -NOAA	5 (above sea level)

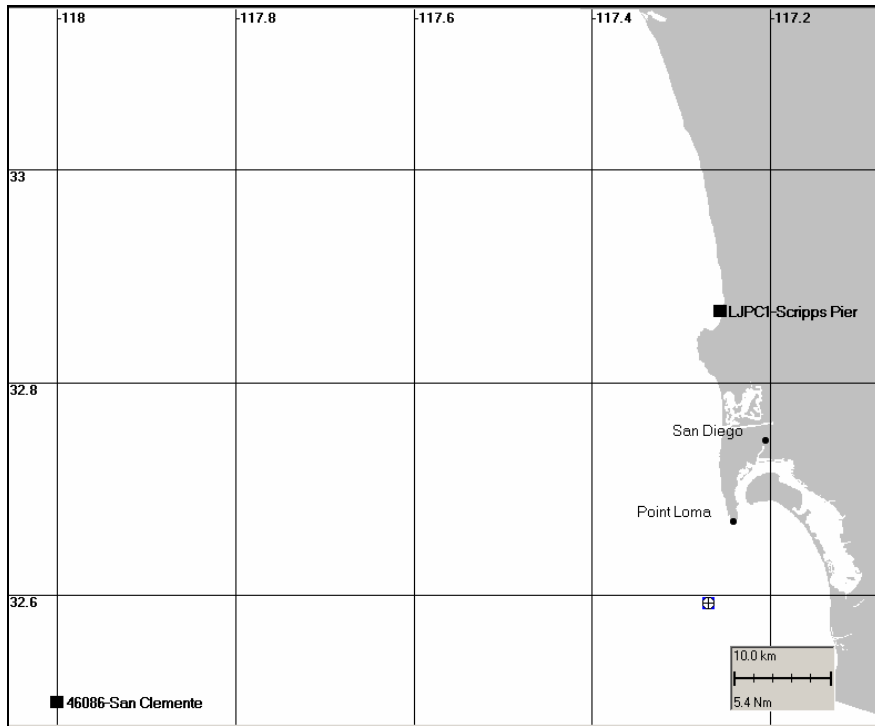


Figure E-1. Map of wind station locations along the southern California coast.

E.2 Results of November 8, 2005 Experiment

Table E-2. Wind data during the November 8, 2005 experiment.

Wind Station: LJPCI				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
10	18	160	7.8	4
11	19	170	9.7	5
12	20	190	11.7	6
13	21	200	13.6	7
14	22	200	11.7	6
Mean During Experiment :		187	10.5	5.4

Wind Station: 46086				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
10	18	150	11.7	6
11	19	170	11.7	6
12	20	160	11.7	6
13	21	180	13.6	7
14	22	180	11.7	6
Mean During Experiment :		168	11.8	6.1

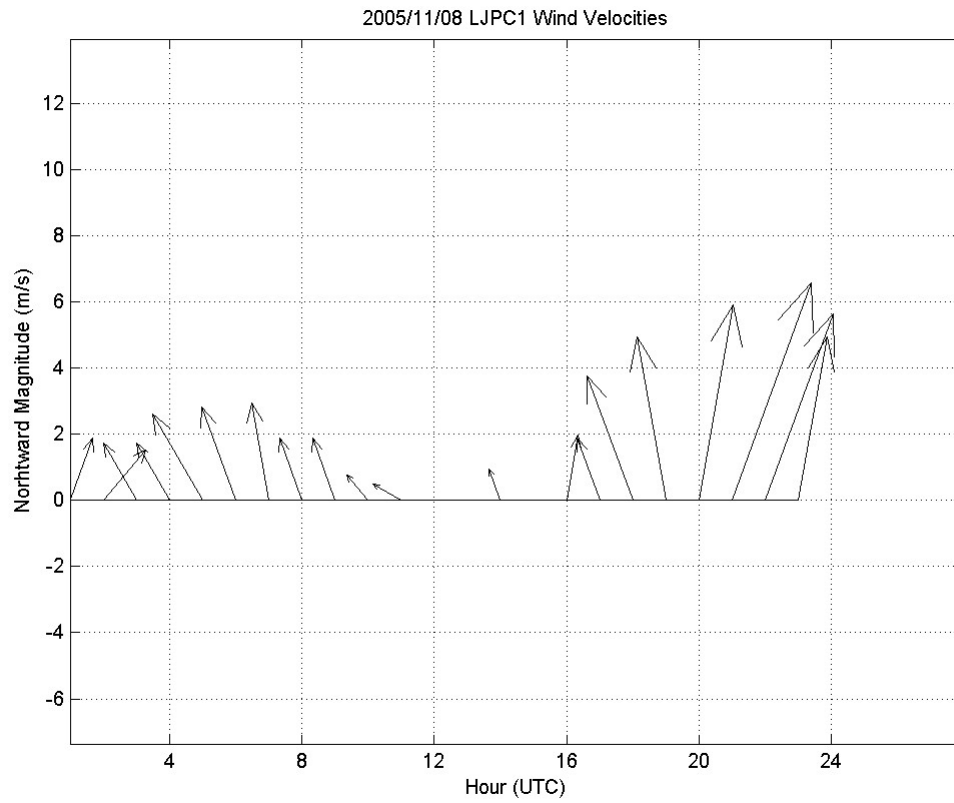


Figure E-2. Wind velocity (towards) at station LJPC1 prior to and during the November 8, 2005 experiment.

E.3 Results of March 21, 2006 Experiment

Table E-3. Wind data during the March 21, 2006 experiment.

Wind Station: LJPCI				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
11	19	300	11.7	6
12	20	280	11.7	6
13	21	290	7.8	4
14	22	280	9.7	5
Mean During Experiment :		288	10.1	5.2
Wind Station: 46086				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
11	19	306	12.8	6.6
12	20	303	13.8	7.1
13	21	306	13.8	7.1
14	22	293	10.7	5.5
Mean During Experiment :		302	12.7	6.5
COAMPS Wind at Site				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
11	19	264	16.4	8.5
12	20	281	14.7	7.6
13	21	304	14.0	7.2
14	22	297	10.7	5.5
Mean During Experiment :		286	14.0	7.2

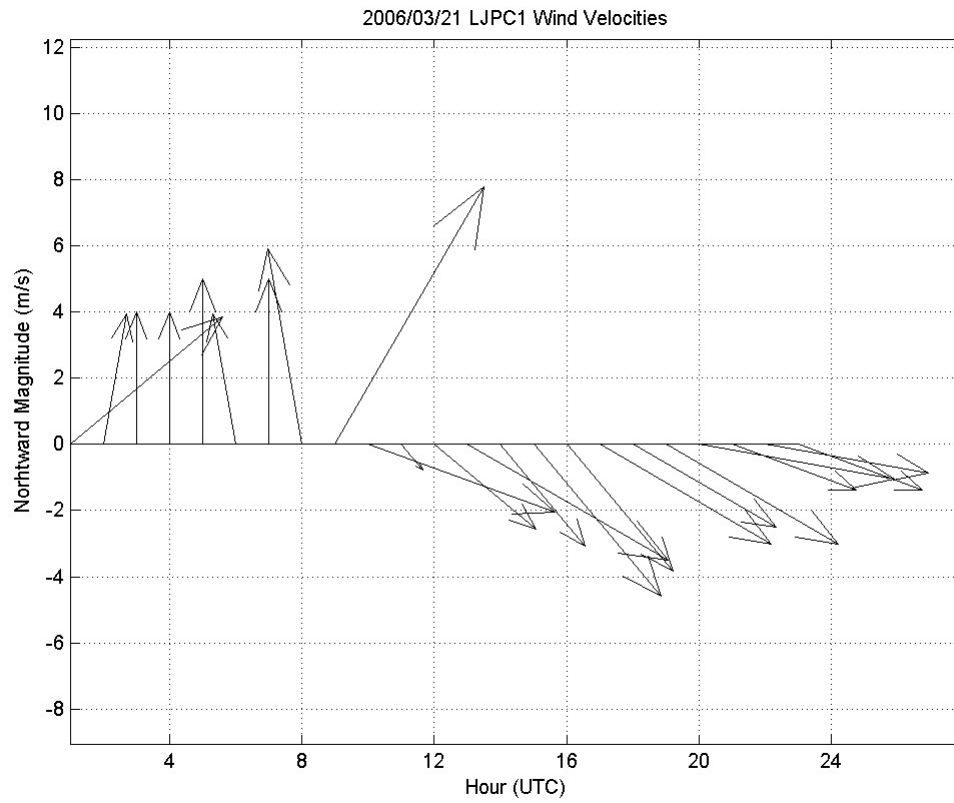


Figure E-3. Wind velocity (towards) at station LJPC1 prior to and during the March 21, 2006 experiment.

E.4 Results of March 22, 2006 Experiment

Table E-4. Wind data during the March 22, 2006 experiment.

Wind Station: LJPCI				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
10	18	320	5.8	10
11	19	310	5.8	11
12	20	320	7.8	12
13	21	320	9.7	13
Mean During Experiment :		318	7.3	3.7
Wind Station: 46086				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
10	18	345	8.8	4.5
11	19	341	9.5	4.9
12	20	352	10.9	5.6
13	21	349	12.8	6.6
Mean During Experiment :		347	10.5	5.4
COAMPS Wind at Site				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
10	18	320	5.7	2.9
11	19	295	9.0	4.6
12	20	294	11.0	5.7
13	21	298	11.7	6.0
Mean During Experiment :		302	9.4	4.8

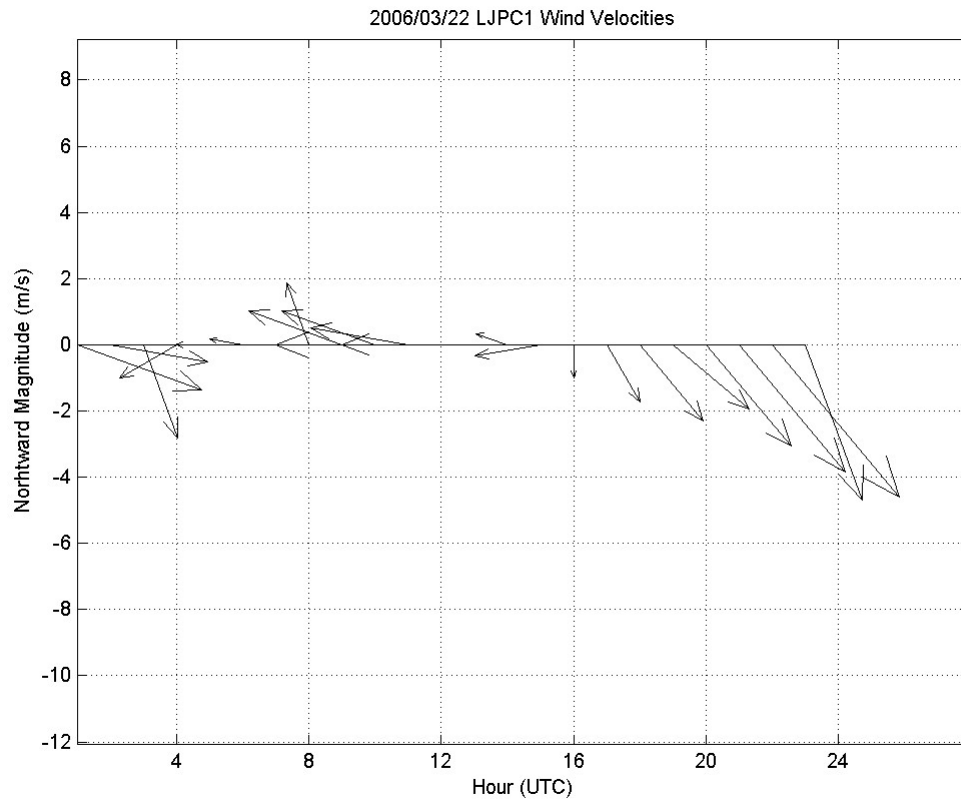


Figure E-4. Wind velocity (towards) at station LJPC1 prior to and during the March 22, 2006 experiment.

E.5 Results of June 21, 2006 Experiment

Table E-5. Wind data during the June 21, 2006 experiment.

Wind Station: LJPCI				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
12	19	250	7.8	4.0
13	20	250	7.8	4.0
14	21	260	5.8	3.0
15	22	270	5.8	3.0
Mean During Experiment :		256	6.7	3.5
Wind Station: 46086				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
12	19	263	3.3	1.7
13	20	270	0.6	0.3
14	21	231	4.1	2.1
15	22	265	5.2	2.7
Mean During Experiment :		254	3.2	1.6
COAMPS Wind at Site				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
12	19	271	8.3	4.2
13	20	276	9.1	4.7
14	21	273	10.7	5.5
15	22	265	11.5	5.9
Mean During Experiment :		271	9.9	5.1

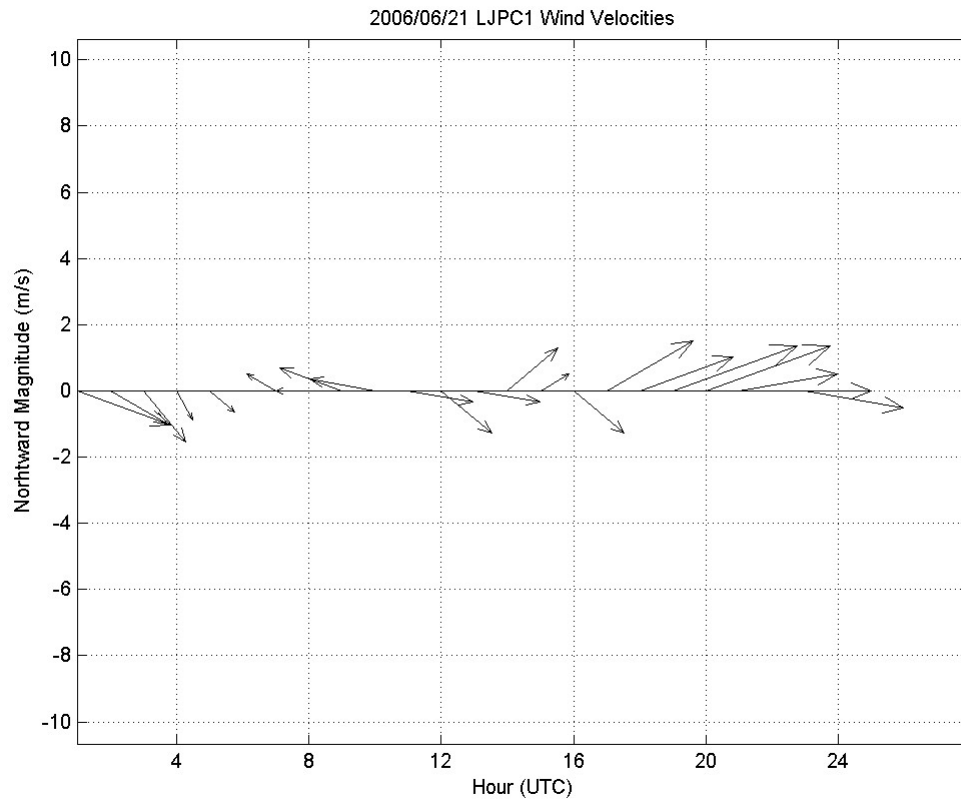


Figure E-5. Wind velocity (towards) at station LJPC1 prior to and during the June 21, 2006 experiment.

E.6 Results of June 22, 2006 Experiment

Table E-6. Wind data during the June 22, 2006 experiment.

Wind Station: LJPCI				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
14	21	240	7.8	4
15	22	240	7.8	4
16	23	250	5.8	3
Mean During Experiment :		246	6.7	3.5
Wind Station: 46086				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
14	21	201	8.0	4.1
15	22	222	6.6	3.4
16	23	246	6.8	3.5
Mean During Experiment :		226	6.0	3.1
COAMPS Wind at Site				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
14	21	246	10.1	5.2
15	22	248	9.9	5.1
16	23	219	7.2	3.7
Mean During Experiment :		238	9.1	4.7

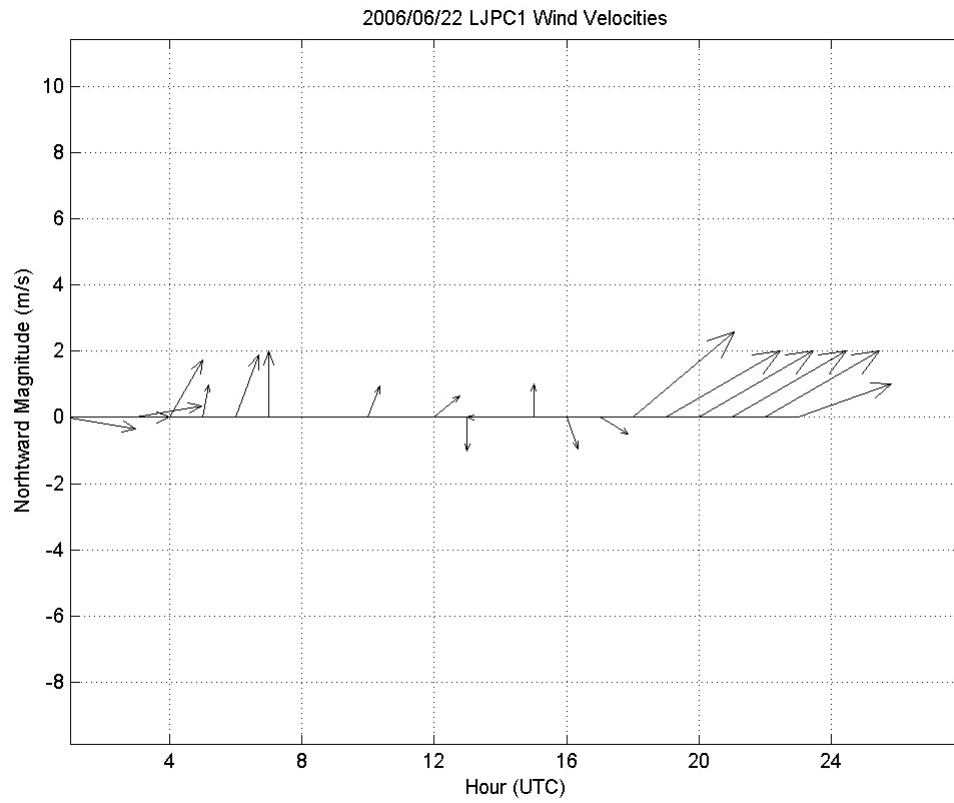


Figure E-6. Wind velocity (towards) at station LJPC1 prior to and during the June 22, 2006 experiment.

E.7 Results of November 1, 2006 Experiment

Table E-7. Wind data during the November 1, 2006 experiment.

Wind Station: LJPCI				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
12	20	320	9.9	5.1
13	21	320	12.1	6.2
14	22	330	9.9	5.1
15	23	330	9.9	5.1
Mean During Experiment :		325	10.4	5.4
Wind Station: 46086				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
12	20	300	9.72	5
13	21	310	7.78	4
14	22	310	9.72	5
15	23	310	9.72	5
Mean During Experiment :		307	9.2	4.7
COAMPS Wind at Site				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
12	20	295	11.3	5.8
13	21	298	9.7	5.0
14	22	298	11.7	6.0
15	23	312	9.9	5.1
Mean During Experiment :		301	10.6	5.5

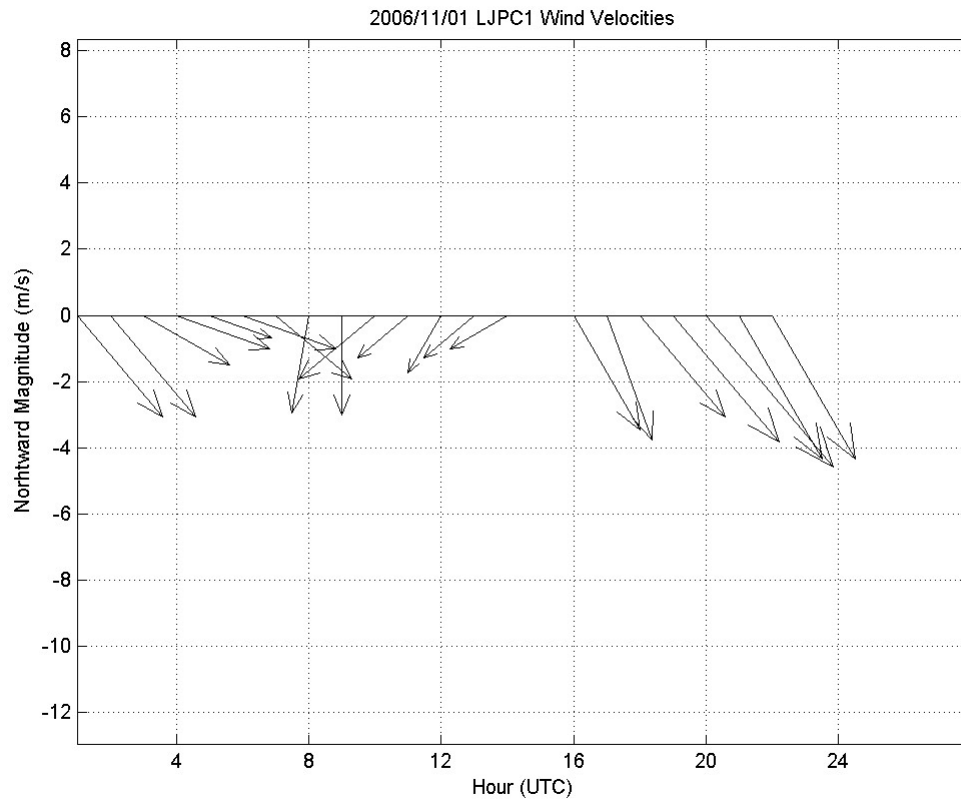


Figure E-7. Wind velocity (towards) at station LJPC1 prior to and during the November 1, 2006 experiment.

E.8 Results of November 2, 2006 Experiment

Table E-8. Wind data during the November 2, 2006 experiment.

Wind Station: LJPCI				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
11	19	360	6.0	3.1
12	20	350	6.0	3.1
13	21	320	9.9	5.1
14	22	320	9.9	5.1
Mean During Experiment :		333	7.6	3.9
Wind Station: 46086				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
11	19	320	9.7	5
12	20	320	11.7	6
13	21	330	11.7	6
14	22	330	13.6	7
Mean During Experiment :		325	11.6	6.0
COAMPS Wind at Site				
Hour (PST)	Hour (UTC)	Direction	Knots	m/sec
11	19	332	8.1	4.2
12	20	318	9.5	4.9
13	21	308	14.7	7.5
14	22	315	13.1	6.8
Mean During Experiment :		318	11.3	5.8

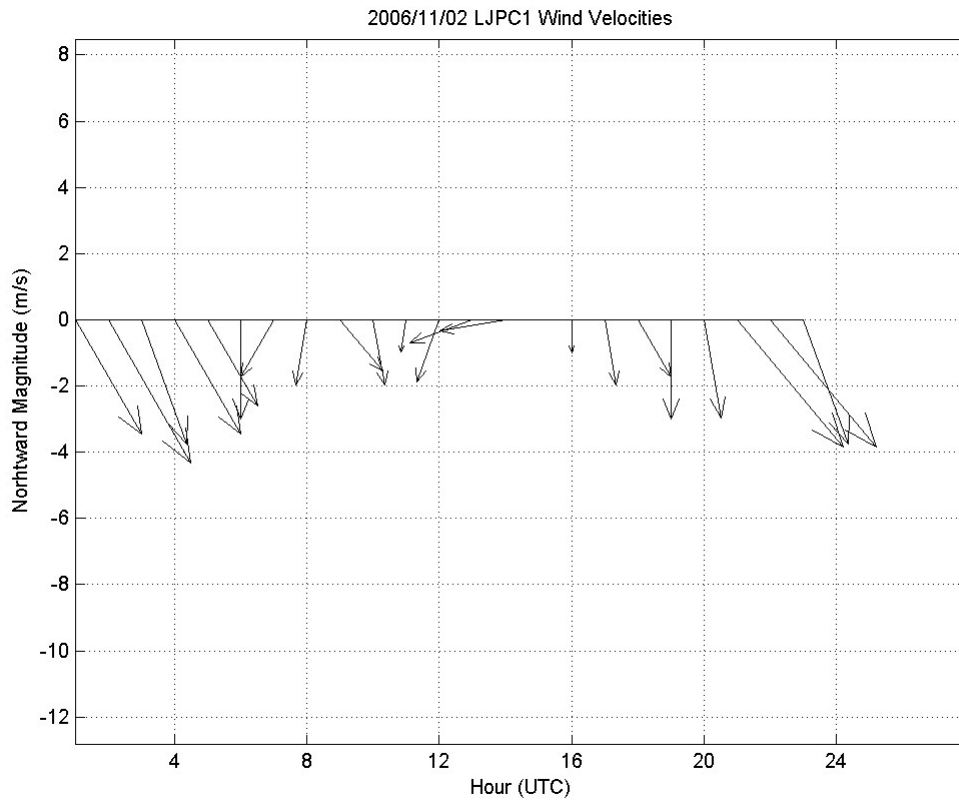


Figure E-8. Wind velocity (towards) at station LJPC1 prior to and during the November 2, 2006 experiment.

E.9 Results of August 9, 2006 Safe Seas Experiment

Table E-9. Wind data during the August 9, 2006 experiment.

Wind Station: 46026			
Hour (PST)	Direction	Knots	m/sec
12	300	9.7	5
13	310	9.7	5
Mean During Experiment :	305	9.7	5