****
Global Attributes:
****
CREATION_DATE = ’04-Apr-2019’
creator_name = 'A. Kirincich'
creator_email = 'akirincich@whoi.edu'
naming_authority = 'edu.whoi.mvco'
EXPERIMENT = ‘Massachusetts Clean Energy Center MetOcean Data Initiative'

Abstract = 'This data was collected by Kirincich as part of a metocean monitoring campaign designed around the observation of key atmospheric and ocean parameters at an existing offshore platform in the proximity of the Massachusetts and Rhode Island Wind Energy Areas. The campaign supported the purchase and installation of a LIDAR wind profiler, two cup anemometers and a wind direction vane at the MVCO Air-Sea Interaction Tower (ASIT). These instruments, chosen in consultation with AWS Truepower to adhere to Massachusetts Clean Energy Center (MassCEC)’s MetOcean Measurement Plan, were installed over the course of four day cruises to the MVCO tower between October and December 2016 and maintained to present.'

DESCRIPTION = 'The WHOI LIDAR system is an accepted, validated, industry-standard profiling light detection and ranging (lidar) remote wind sensor deployed at the Air Sea Interaction Tower (ASIT) offshore of Martha’s Vineyard. A LEOSPHERE WINDCUBE v2 was acquired from Renewable NRG Systems to enable the collection of observations of wind speed, direction, and turbulence statistics of the lower atmosphere at multiple heights above the Tower. The WINDCUBE instrument is an industry approved LIDAR system for use in Wind Energy Resource Characterization studies. The choice of sensor was made in close consultation with AWS Truepower, the wind energy consultant advising MassCEC on its MetOcean Initiative. The LIDAR, serial number WLS7-436, was a leased model owned by Renewable RNG, the U.S. distributor for Leosphere. The LIDAR was validation by Renewable RNG (see appended validation report) and delivered to WHOI at the end of September. Renewable RNG personnel were onsite at WHOI for the setup and final check out of the LIDAR. The LIDAR was installed at the platform level of the tower along an existing walkway that extends to the southwest, into the prevailing summer time wind direction relative to the center of the tower structure. Mounted on an existing shelf as far from the existing Rohn strut tower as possible, the LIDAR connects to the MVCO power and communications systems via cable standard Ethernet and the RNG supplied power cable. The design of the sensor deployment was vetted and approved by AWS Truepower in advance. AWS Truepower personnel were onsite during the installation process to witness and document. See appendices that contain pictures of the installed system and screenshots of the windweb portal that describe the setup of the LIDAR onsite. A full Commissioning report of theses sensors is provided by AWS Truepower and available at https://www.masscec.com/masscec-metocean-data-initiative.
The measurements of the lidar position, the length of the lidar chassis (approximately 21 inches along the south side), and the orientation of the diving board were evaluated to determine the system’s alignment relative to True North. The internal offset of 155deg True is applied for the LIDAR’s orientation. These orientations were combined with the lidar’s internal offset to derive values for adjusting the lidar observations in post-processing. The average post-processing offset from the three sets of measurements was 60.5°. Note that the present data set needs to be adjusted by both the 155deg and 60.5 deg True references to orient the vector wind data correctly.’
DATA_ORIGIN = 'Woods Hole Oceanographic Institution, Department of Physical Oceanography'
FUNDING_SOURCE = 'The observations used in this study were supported by the Massachusetts Clean Energy Center and collected by the Woods Hole Oceanographic Institution.'

DATA_START_TIME = ‘2016-10-08’
DATA_STOP_TIME = ‘2017-11-01’

****
Platform General description
****
platform_type = ‘LIDAR’
INST_TYPE = ‘Leosphere WINDCUBE v2’
Version=2.1.1
ID System=WLS7-436
ID Client=MassCEC
Location=MVCO ASIT
GPS Location=Lat:41.325040N, Long:70.566678W
Comments=Lense height is 13 m above msl; chassis @ 170deg Mag, offset is 155.4 to address declination of 14.6 deg W
FCR Option=OFF
timezone=UTC+0

****
Windcube Parameters
****
Sampling Frequency (Hz)=250000000.000
Ref Frequency (Hz)=67800000.000
Pulses / Line of Sight=20000
Samples / Pulse=1024
Reflected Pulse Start=59
Reflected Pulse End=133
Ref pulse samples nb=1
Nb High Pass Filter Points=5
FFT Window Width=50
Laser Diode Current (mA)=1900
LOS=
Init Drive Position (∞)=90
Pulse Repetition Rate (Hz)=30000.000
Pulse Duration (s)=0.000000175
Trigger Delay Time=0.000000020
Wavelength (nm)=1543.000
ScanAngle (∞)=28.000
DirectionOffset (∞)=155.400
Declination (∞)=165.100
PitchAngle (∞)=0.200
RollAngle (∞)=-0.100
CNRThreshold=-23.000
VrThreshold (m/s)=1.700
SigmaFreqThreshold (m/s)=0.750
WiperCNRThreshold=-19.000
WiperAltitude (m)=100

WiperDuration (ms)=5000
Altitudes (m)= 40 47 67 77 87 97 107 127 147 167 187

****
Data File Description
****
infile_prefix = 'WLS7-436_'

Column	Description	(unit)
1	Timestamp	(YYYY/MM/DD HH:MM:SS.ms)
2	Position	(beam position, compass degrees from heading ref 0,90,180,270, or v (vertical))
3	Temperature	(degC)
4	Wiper Count	
5	40m CNR	(dB)
6	40m Radial Wind Speed	(m/s)
7	40m Radial Wind Speed Dispersion	(m/s)
8	40m Wind Speed	(m/s)
9	40m Wind Direction	(∞)
10	40m X-wind	(m/s)
11	40m Y-wind	(m/s)
12	40m Z-wind	(m/s)
13	47m CNR	(dB)
14	47m Radial Wind Speed	(m/s)
15	47m Radial Wind Speed Dispersion	(m/s)
16	47m Wind Speed	(m/s)
17	47m Wind Direction	(∞)
18	47m X-wind	(m/s)
19	47m Y-wind	(m/s)
20	47m Z-wind	(m/s)
21	67m CNR	(dB)
22	67m Radial Wind Speed	(m/s)
23	67m Radial Wind Speed Dispersion	(m/s)
24	67m Wind Speed	(m/s)
25	67m Wind Direction	(∞)
26	67m X-wind	(m/s)
27	67m Y-wind	(m/s)
28	67m Z-wind	(m/s)
29	77m CNR	(dB)
30	77m Radial Wind Speed	(m/s)
31	77m Radial Wind Speed Dispersion	(m/s)
32	77m Wind Speed	(m/s)
33	77m Wind Direction	(∞)
34	77m X-wind	(m/s)
35	77m Y-wind	(m/s)
36	77m Z-wind	(m/s)
37	87m CNR	(dB)
38	87m Radial Wind Speed	(m/s)
39	87m Radial Wind Speed Dispersion	(m/s)

40 87m Wind Speed (m/s)
41 87m Wind Direction (∞)
42 87m X-wind (m/s)
43 87m Y-wind (m/s)
44 87m Z-wind (m/s)
45 97m CNR (dB)
46 97m Radial Wind Speed (m/s)
47 97m Radial Wind Speed Dispersion (m/s)
48 97m Wind Speed (m/s)
49 97m Wind Direction (∞)
50 97m X-wind (m/s)
51 97m Y-wind (m/s)
52 97m Z-wind (m/s)
53 107m CNR (dB)
54 107m Radial Wind Speed (m/s)
55 107m Radial Wind Speed Dispersion (m/s)
56 107m Wind Speed (m/s)
57 107m Wind Direction (∞)
58 107m X-wind (m/s)
59 107m Y-wind (m/s)
60 107m Z-wind (m/s)
61 127m CNR (dB)
62 127m Radial Wind Speed (m/s)
63 127m Radial Wind Speed Dispersion (m/s)
64 127m Wind Speed (m/s)
65 127m Wind Direction (∞)
66 127m X-wind (m/s)
67 127m Y-wind (m/s)
68 127m Z-wind (m/s)
69 147m CNR (dB)
70 147m Radial Wind Speed (m/s)
71 147m Radial Wind Speed Dispersion (m/s)
72 147m Wind Speed (m/s)
73 147m Wind Direction (∞)
74 147m X-wind (m/s)
75 147m Y-wind (m/s)
76 147m Z-wind (m/s)
77 167m CNR (dB)
78 167m Radial Wind Speed (m/s)
79 167m Radial Wind Speed Dispersion (m/s)
80 167m Wind Speed (m/s)
81 167m Wind Direction (∞)
82 167m X-wind (m/s)
83 167m Y-wind (m/s)
84 167m Z-wind (m/s)
85 187m CNR (dB)
86 187m Radial Wind Speed (m/s)
87 187m Radial Wind Speed Dispersion (m/s)

88 187m Wind Speed (m/s)
89 187m Wind Direction (∞) 187m X-wind (m/s)
90 187m Y-wind (m/s)
91 187m Z-wind (m/s)

****

File Conventions = ‘ASCII text in 7z compression’
History = ‘Downloaded and Archived by A. Kirincich'