

FINO1 – Meta data

Institutions / contact persons	
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Contact person	Jan Bachmann
Operator of met. measurement	UL International GmbH - DEWI
Contact person	Richard Fruehmann
Operator of data management	BSH
Contact person	Olaf Outzen

Platform	
Name	FINO1
Position Platform [°,min,sec]	N54° 00' 53,2" E6° 35' 15,5"
Water depth (Ref.:SKN) [m]	30 m
Height of platform deck [m ü. SKN]	21
Area of main deck (m*m)	16 m * 16 m
Heli pad	yes
Foundation	Jacket

Mast	
Geometry	square
Length [m]	81.5
TOP Height [m above LAT]	103.7
Length of the edge bottom [m]	4
Length of the edge top [m]	1
Number of segments	4



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Data acquisition system				
Logger	Manufacturer	Type	Number	Bus system
	Gantner	Q-Station	2	-
	Ammonit (until Sept. 2015)	(P414)	(1)	-
	Ammonit (until Sept. 2015)	(Meteo32)	(1)	-
	Hottinger Baldwin Measurements	MGC	3	-
Back-up-Logger	Online data transfer			
	Server			
electr. supply	12 V			

Mast and boom dimensions									
Number of measuring heights	9								
Number of booms	14								
Orientations [°]	129	129/312	129/324	126/321	129/330	129/321	122/321	120/328	vertical
Height above LAT [m]	level 0	level 1	level 2	level 3	level 4	level 5	level 6	level 7	level 8
	21	33.5	41	51	61	71	81	91	101
Boom length [m]	-	6.081	6.081	5.118	5.077	3.569	2.612	2.641	-
Boom diameter [m]	-	101.6x6.3	101.6x6.3	101.6x6.3	101.6x6.3	101.6x6.3	101.6x6.3	101.6x6.3	-
Width of mast [m]	4	3.532	3.254	2.875	2.504	2.124	1.754	1.375	1
Sensor mounting shaft diameter [mm]	-	24x4/48.3x4	24x4/60.3x4	24x4/48.3x4	24x4/60.3x4	24x4/48.3x4	24x4/60.3x4	24x4/48.3x4	24x4
Structural tubing diameter (vertical) [mm]	168.3x20	168.3x20	168.3x20	152.4x16	152.4x16	108x12.5	108x12.5	76.1x8	-
Structural tubing diameter (horizontal) [mm]	54x4	54x4	54x4	54x4	54x4	44.5x4	44.5x4	44.5x4	-
Structural tubing diameter (diagonal) [mm]	76.1x10	76.1x10	76.1x10	73x7.1	73x7.1	63.5x6.3	63.5x6.3	54x4	-
Solidity (acc. IEC 61400-12-1)	-	-	-	-	0.273	-	-	-	-



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Sensor Overview													
Device	Measurand	Manufacturer	Sensor Type	Accuracy	Units	Position	Orientation [°]	Method of orientation	Boom height above LAT [m]	Measurement height above LAT [m]	Measurement height above MSL [m]	Horizontal distance to outer edge of mast [m]	Vertical dist. above boom [m]
Barometer	Air Pressure	Vaisala	Baro Transmitter PTB 100 A	0.3hPa (@20°C) 1hPa (@ 0...40°C)	hPa	inside container	-	-	21	-	-	-	-
Barometer	Air Pressure	Vaisala	Baro Transmitter PTB 100 A	0.3hPa (@20°C) 1hPa (@ 0...40°C)	hPa	Mast (internally mounted)	-	-	93	-	-	inside	-
Thermometer	Temperature	Thies	Hygro- Thermo Transmitter 1.1005.50.512	±0.1°C @ 0°C	° C	Mast (internally mounted)	-	-	33.5	34.9	33.6	inside	1.40
Thermometer	Temperature	Thies	Hygro- Thermo Transmitter 1.1005.50.512	+/-0.1°C @ 0°C	° C	Mast (internally mounted)	-	-	41	42.4	41.1	inside	1.40
Thermometer	Temperature	Thies	Hygro- Thermo Transmitter 1.1005.50.512	+/-0.1°C @ 0°C	° C	Mast (internally mounted)	-	-	51	52.4	51.1	inside	1.40
Thermometer	Temperature	Thies	Hygro- Thermo Transmitter 1.1005.50.512	+/-0.1°C @ 0°C	° C	Mast (internally mounted)	-	-	71	72.4	71.1	inside	1.40
Thermometer	Temperature	Thies	Hygro- Thermo Transmitter 1.1005.50.512	+/-0.1°C @ 0°C	° C	Mast (internally mounted)	-	-	101	-	-	inside	-
Lightning strike counter	Number of strikes	Meteolabor Ag	BZ2	N.A.	#	Southern platform leg	-	-	≈ 19	-	-	-	-
Pyranometer	Globalradiation	Kipp & Zonen	Pyranometer CM11	3%	W/m ²	individual boom	≈SSW	-	33.5	34.8	33.4	1.00	1.28
Pyranometer	Globalradiation	Kipp & Zonen	Pyranometer CM11	3%	W/m ²	individual boom	180	-	93	-	-	≈0.40	-
Precipitation sensor	Precipitation intensity	Thies	Precipitation Sensor 5.4103.20.xxx	N.A.	mA	container top	0	-	21	23.7	22.4	1.54	2.72
Precipitation sensor	Precipitation Y/N	Thies	Precipitation Monitor 5.4103.10.000	N.A.	1/0	Mast (externally mounted)	180	-	101	101.2	99.9	0.07	0.22
Hygrometer	Relative Humidity	Thies	Hygro- Thermo Transmitter 1.1005.50.512	± 3 % RH	%	Mast (internally mounted)	-	-	33.5	34.9	33.6	inside	1.40
Hygrometer	Relative Humidity	Thies	Hygro- Thermo Transmitter 1.1005.50.512	± 3 % RH	%	Mast (internally mounted)	-	-	41	42.4	41.1	inside	1.40
Hygrometer	Relative Humidity	Thies	Hygro- Thermo Transmitter 1.1005.50.512	± 3 % RH	%	Mast (internally mounted)	-	-	51	52.4	51.1	inside	1.40
Hygrometer	Relative Humidity	Thies	Hygro- Thermo Transmitter 1.1005.50.512	± 3 % RH	%	Mast (internally mounted)	-	-	71	72.4	71.1	inside	1.40
Hygrometer	Relative Humidity	Thies	Hygro- Thermo Transmitter 1.1005.50.512	± 3 % RH	%	Mast (internally mounted)	-	-	101	101.2	99.9	inside	-
Radiometer	UV-radiation	Kipp & Zonen	CUV3	N.A.	W/m ²	On individual boom	-	-	93	-	-	ca. 600	-
Cup Anemometer	Wind speed	Vector Instruments Windspeed Ltd.	A100LK/PC3/WR	0.1m/s	m/s	On boom	143	-	33.5	34.1	32.8	6.00	0.64
Cup Anemometer	Wind speed	Vector Instruments Windspeed Ltd.	A100LK/PC3/WR	0.1m/s	m/s	On boom	142	-	41	41.6	40.3	6.00	0.64
Cup Anemometer	Wind speed	Vector Instruments Windspeed Ltd.	A100LK/PC3/WR	0.1m/s	m/s	On boom	140	-	51	51.6	50.3	5.50	0.64
Cup Anemometer	Wind speed	Vector Instruments Windspeed Ltd.	A100LK/PC3/WR	0.1m/s	m/s	On boom	142	-	61	61.6	60.3	5.50	0.64

Sensor Overview													
Device	Measurand	Manufacturer	Sensor Type	Accuracy	Units	Position	Orientation [°]	Method of orientation	Boom height above LAT [m]	Measurement height above LAT [m]	Measurement height above MSL [m]	Horizontal distance to outer edge of mast [m]	Vertical dist. above boom [m]
Cup Anemometer	Wind speed	Vector Instruments Windspeed Ltd.	A100LK/PC3/WR	0.1m/s	m/s	On boom	143	-	71	71.6	70.3	4.00	0.64
Cup Anemometer	Wind speed	Vector Instruments Windspeed Ltd.	A100LK/PC3/WR	0.1m/s	m/s	On boom	139	-	81	81.6	80.3	3.00	0.64
Cup Anemometer	Wind speed	Vector Instruments Windspeed Ltd.	A100LK/PC3/WR	0.1m/s	m/s	On boom	135	-	91	91.6	90.3	3.00	0.64
Cup Anemometer	Wind speed	Vector Instruments Windspeed Ltd.	A100LK/PC3/WR	0.1m/s	m/s	On vertical strut	-	-	101	102.5	101.2	middle	1.5
Wind vane	Wind direction	Thies	Wind Vane Classic 4.3120.22.012	N.A.	°	On boom	307	Mast geometry & Horizon	33.5	34.1	32.8	6.00	0.65
Wind vane	Wind direction	Thies	Wind Vane Classic 4.3120.22.012	N.A.	°	On boom	310	Mast geometry & Horizon	51	51.6	50.3	5.50	0.65
Wind vane	Wind direction	Thies	Wind Vane Classic 4.3120.22.012	N.A.	°	On boom	307	Mast geometry & Horizon	71	71.6	70.3	4.00	0.65
Wind vane	Wind direction	Thies	Wind Vane Classic 4.3120.22.012	N.A.	°	On boom	315	Mast geometry & Horizon	91	91.6	90.3	3.00	0.65
Ultrasonic anemometer	Wind speed, Wind direction, Temperature	Gill Instruments	R3-50	<1°rms	m/s, °, °C	On boom	308	correlated to wind vanes	41	42.1	40.7	6.00	1.08
Ultrasonic anemometer	Wind speed, Wind direction, Temperature	Gill Instruments	R3-50	<1°rms	m/s, °, °C	On boom	308	correlated to wind vanes	61	62.1	60.7	5.50	1.08
Ultrasonic anemometer	Wind speed, Wind direction, Temperature	Gill Instruments	R3-50	<1°rms	m/s, °, °C	On boom	311	correlated to wind vanes	81	82.1	80.7	3.00	1.08

Record of relevant building activities and other events		
Date	Event	Height above MSL
2009/2010	Construction and start of operation of Alpha Ventus	All
Jul.-Sept./2015	Change of measurement / logger system from Amonit to Gantner Q-Station	All