Daily Validation of SCATSAT-1 L2B Winds (www.mosdac.gov.in)

Date : 18JUN2018

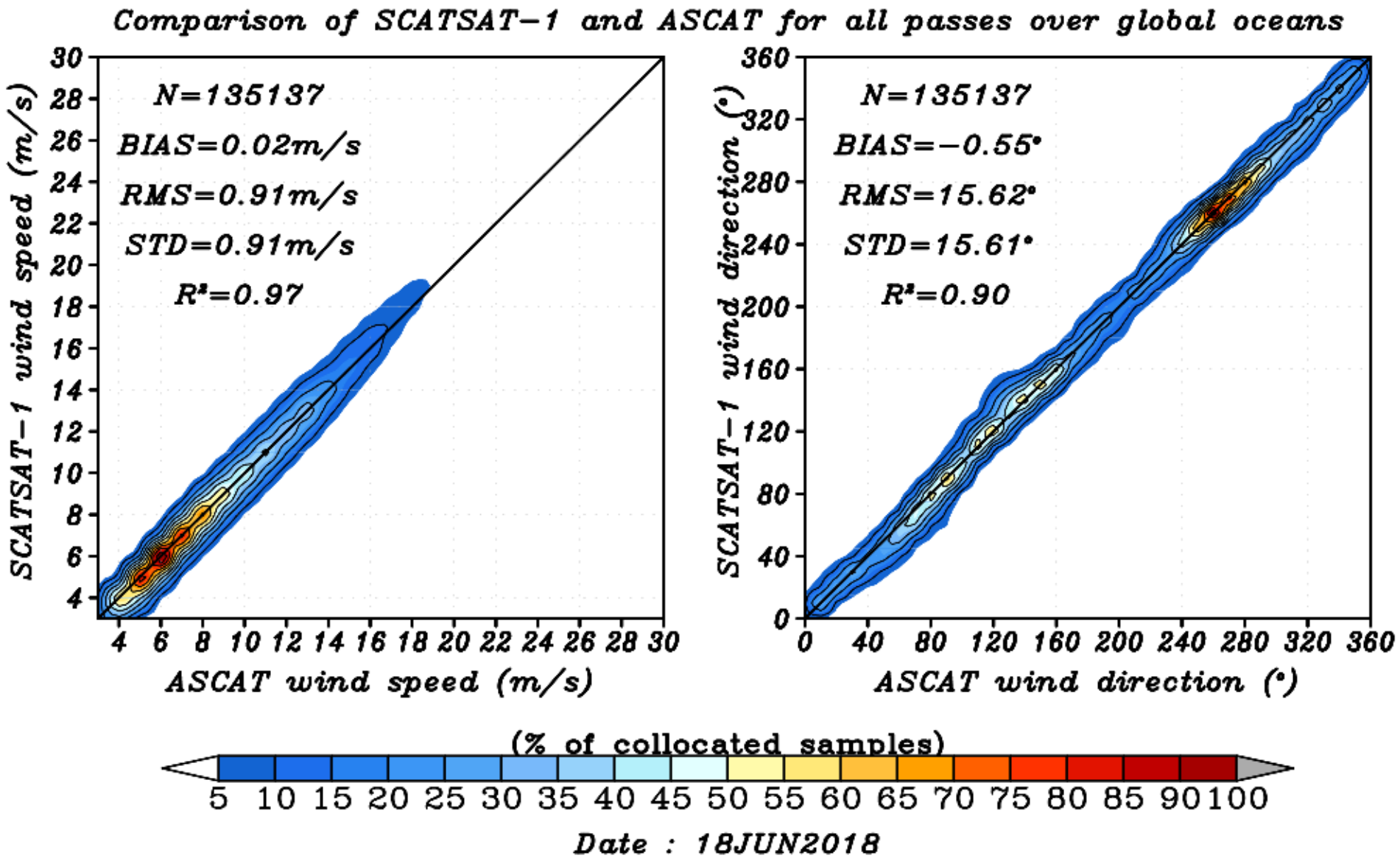
This automated validation is based on comparison with ASCAT & NCMRWF data

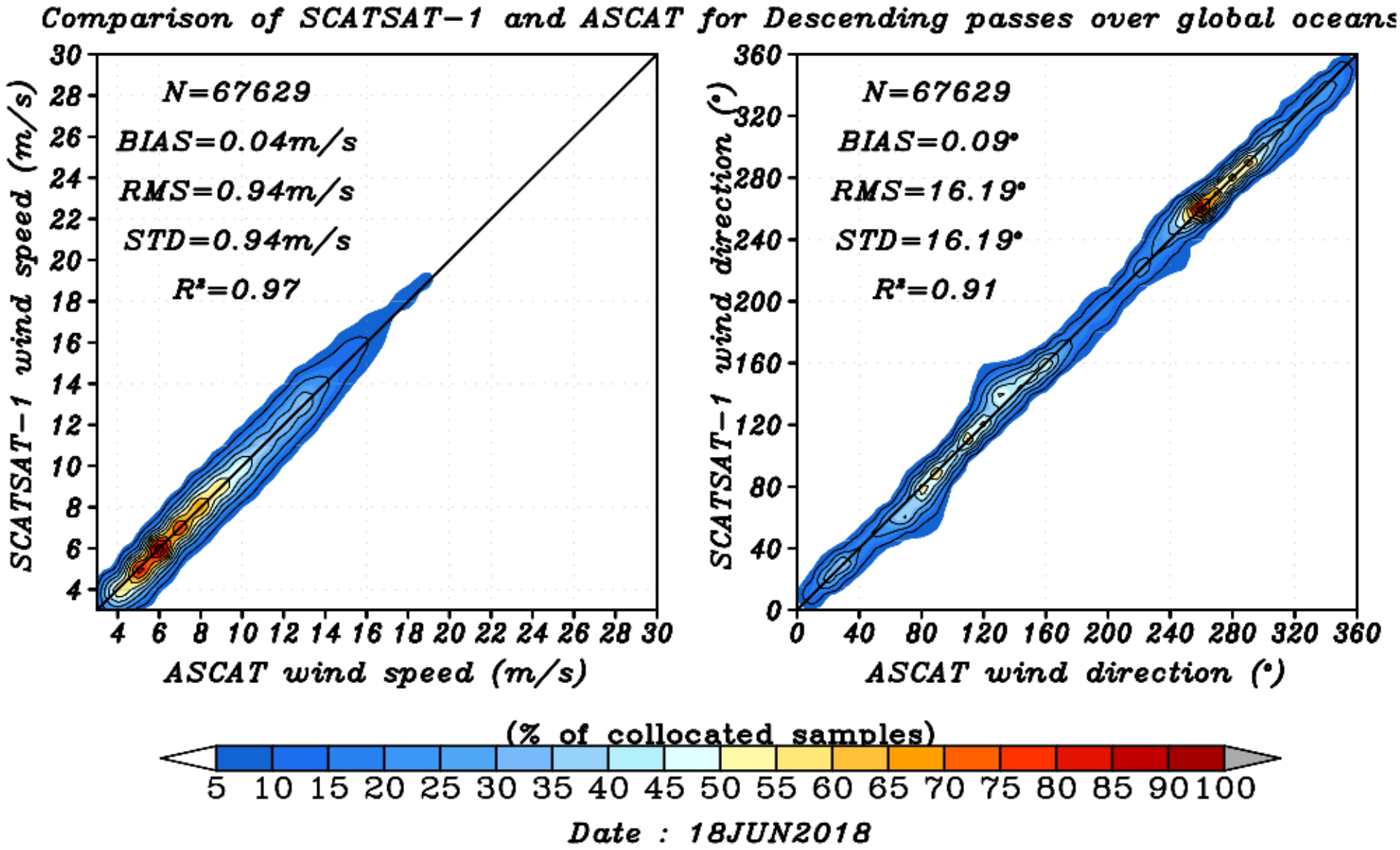
Originating Unit : GRD/AOSG/EPSA/SAC/ISRO

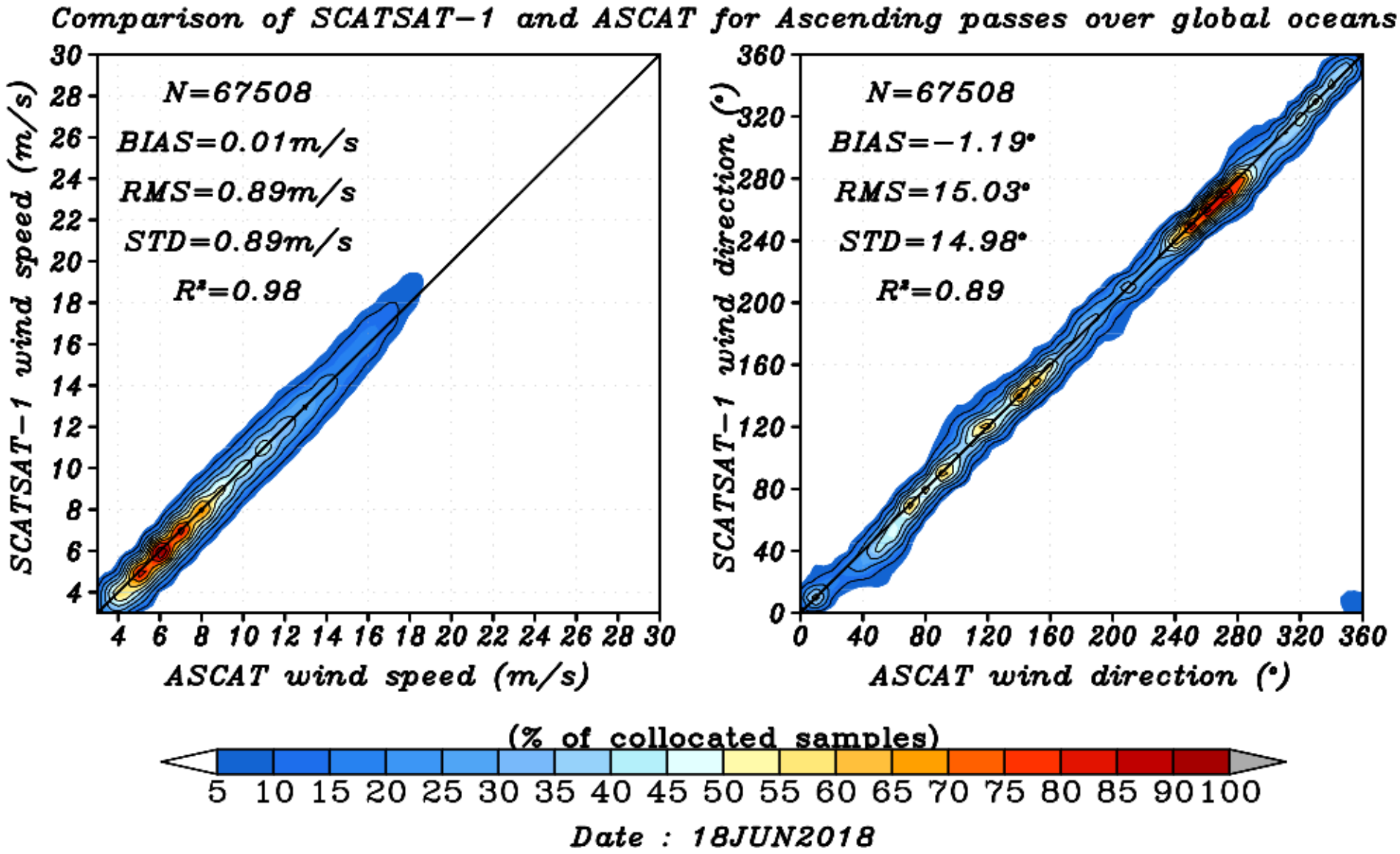
COMPARISON WITH ASCAT

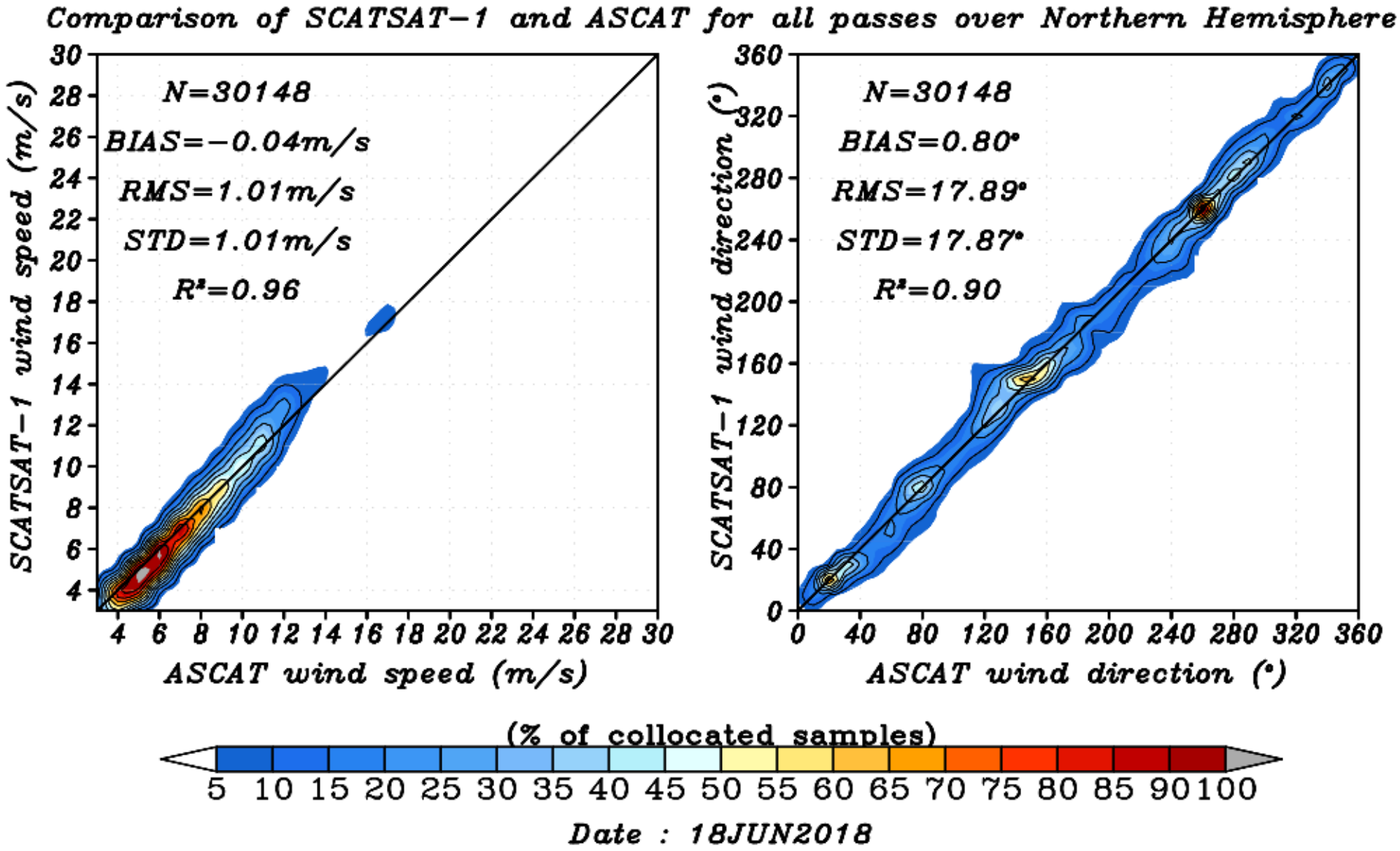
Date : 18JUN2018

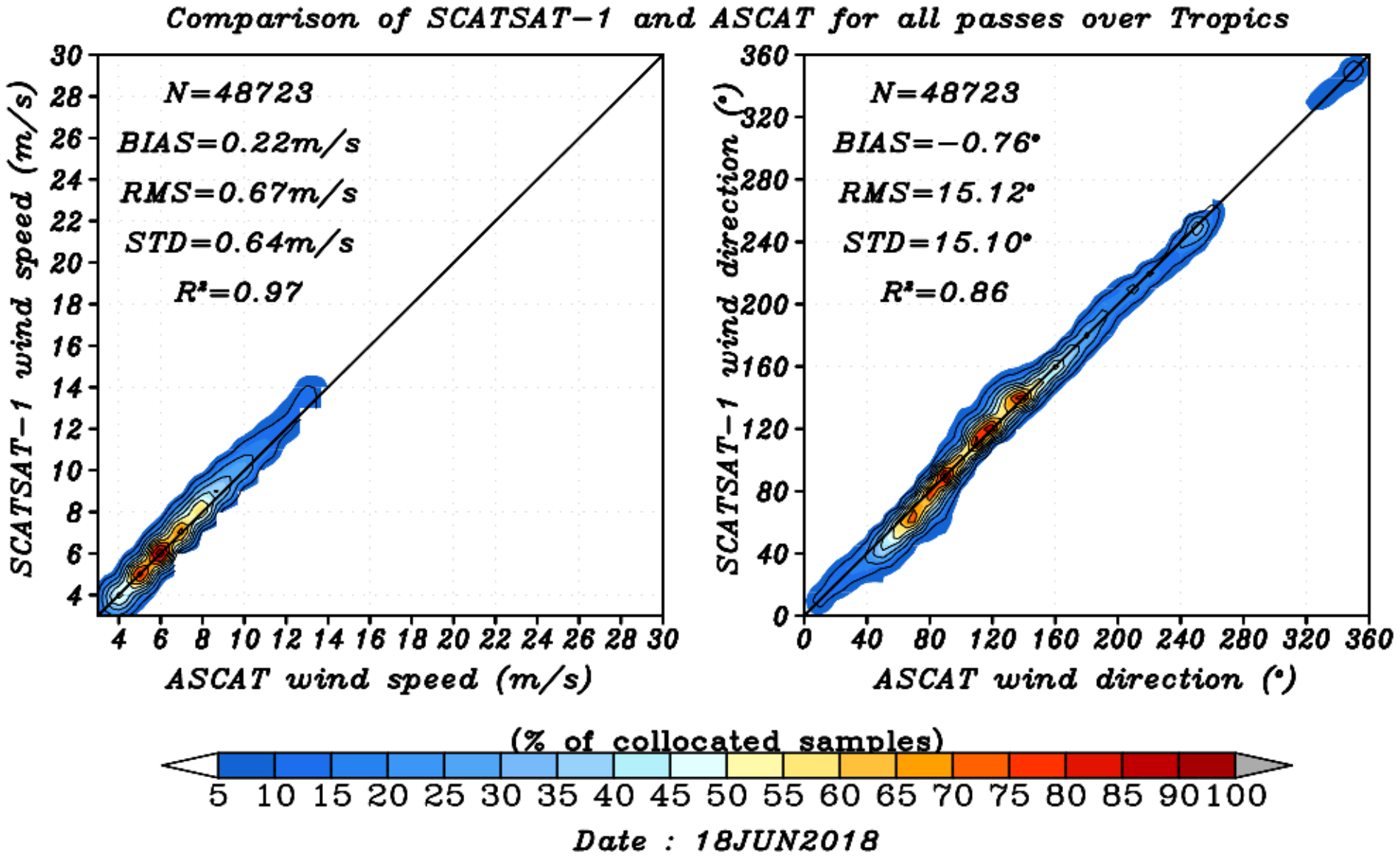
Collocation: delR = 0.25°; delT = 0.5 hr

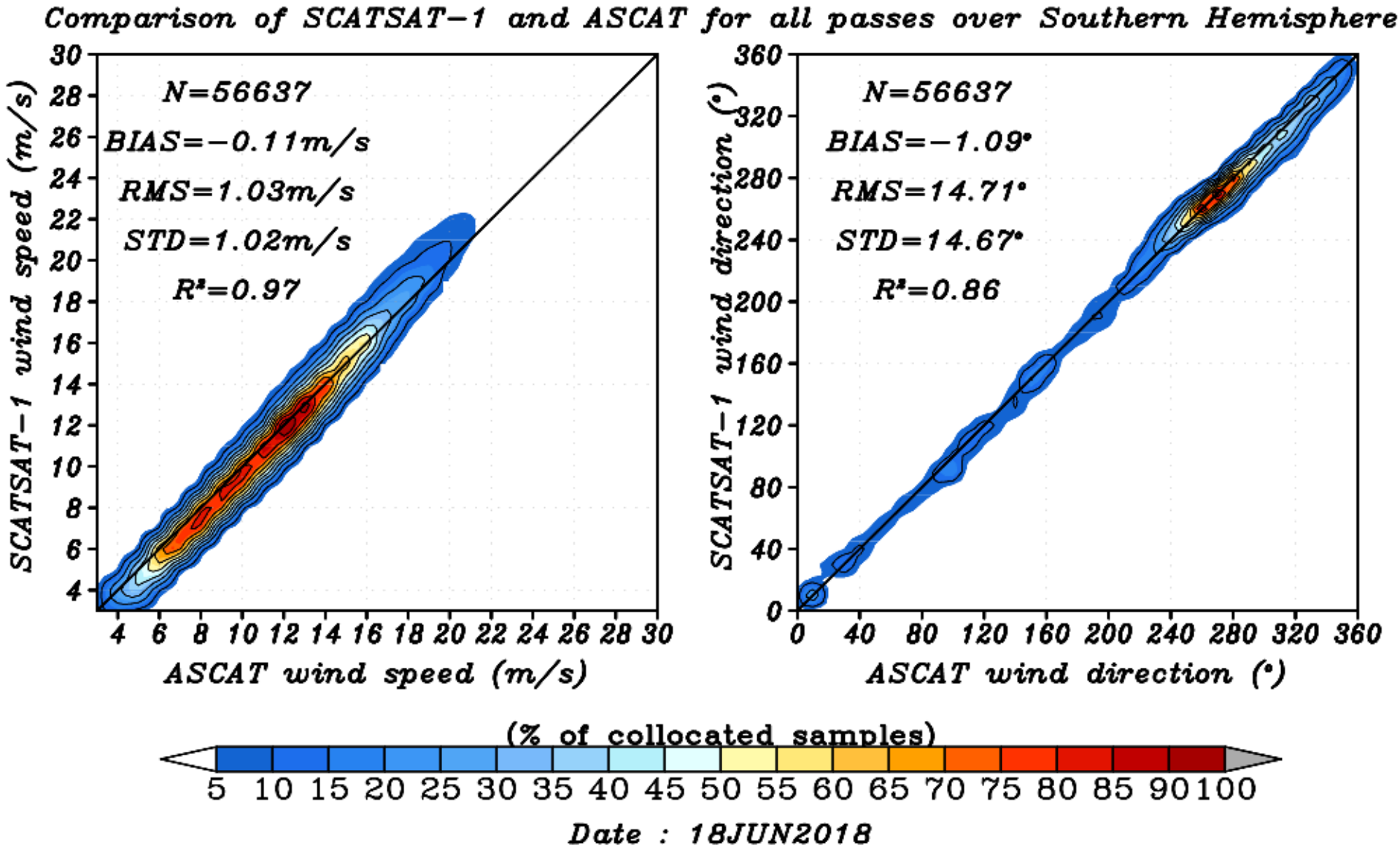

Comparison of SCATSAT−1 and ASCAT for all passes over global oceans
N=135137
BIAS=0.02m/s
RMS=0.91m/s
STD=0.91m/s
R²=0.97
SCATSAT−1 wind speed (m/s)
ASCAT wind speed (m/s)
4 6 8 10 12 14 16 18 20 22 24 26 28 30
N=135137
BIAS=−0.55°
RMS=15.62°
STD=15.61°
R²=0.90
SCATSAT−1 wind direction (°)
ASCAT wind direction (°)
0 40 80 120 160 200 240 280 320 360
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018

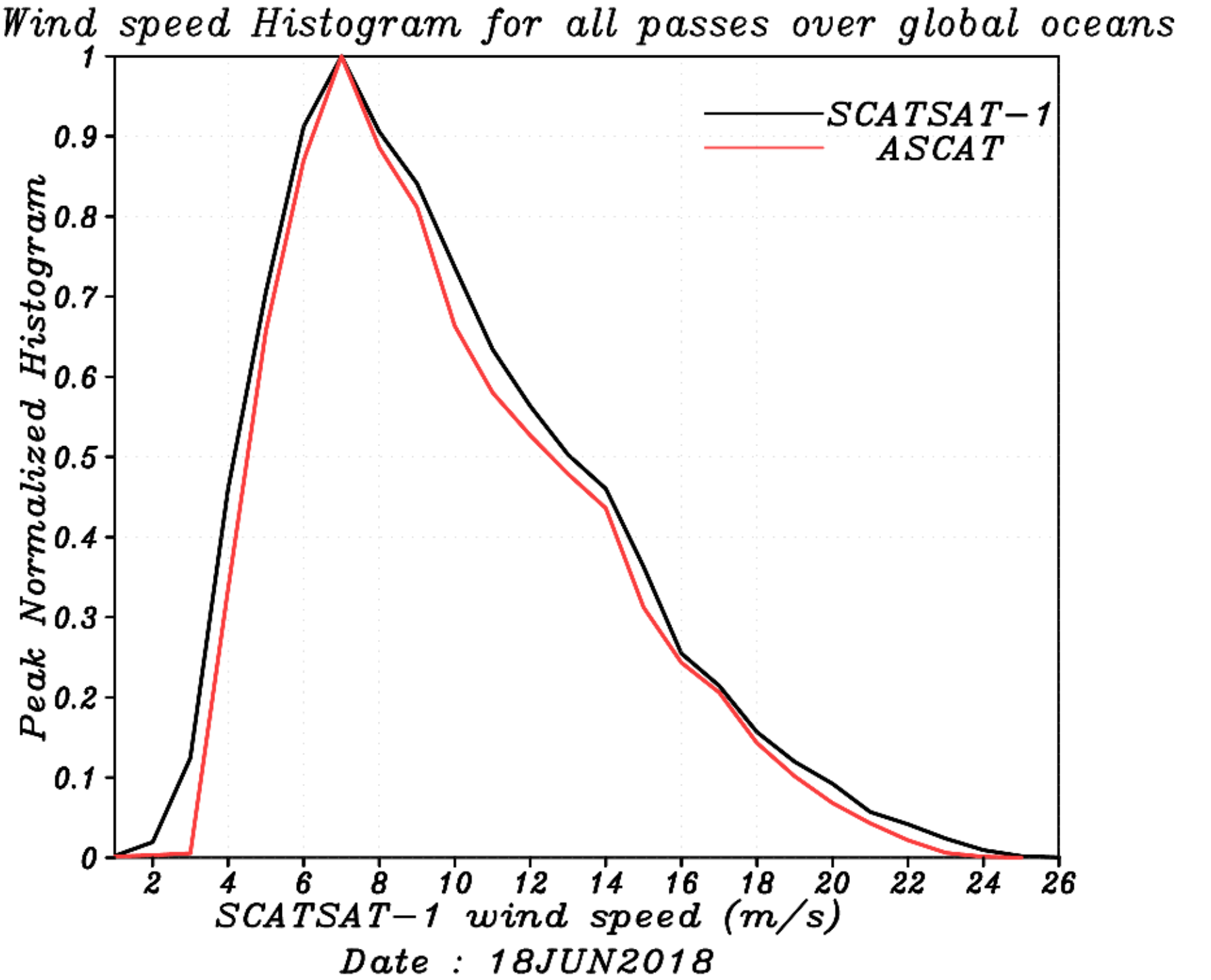

Comparison of SCATSAT-1 and ASCAT for Descending passes over global oceans
N=67629
BIAS=0.04m/s
RMS=0.94m/s
STD=0.94m/s
R²=0.97
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
N=67629
BIAS=0.09°
RMS=16.19°
STD=16.19°
R²=0.91
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018

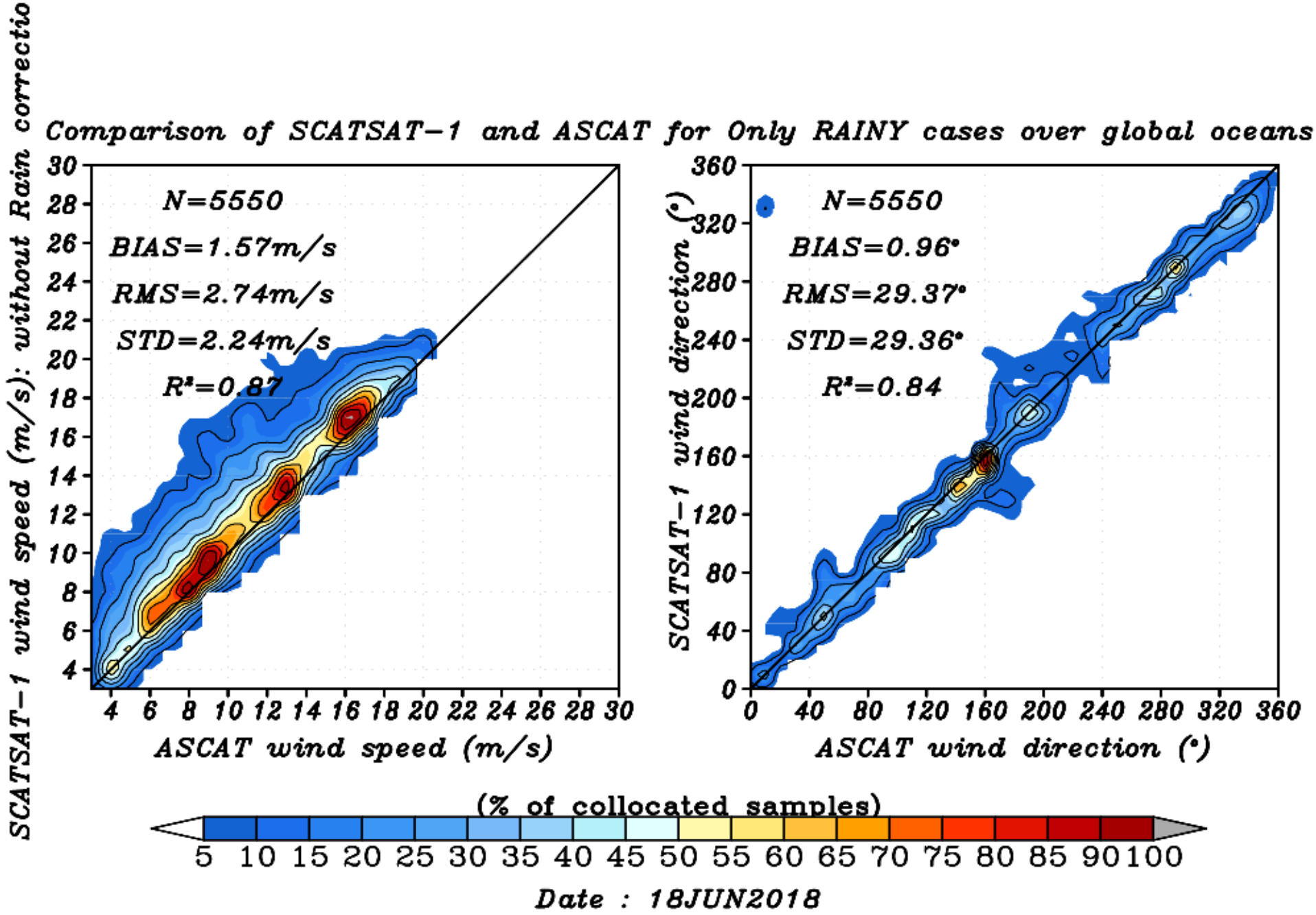

Comparison of SCATSAT-1 and ASCAT for Ascending passes over global oceans
N=67508
BIAS=0.01m/s
RMS=0.89m/s
STD=0.89m/s
R²=0.98
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
4 6 8 10 12 14 16 18 20 22 24 26 28 30
N=67508
BIAS=−1.19°
RMS=15.03°
STD=14.98°
R²=0.89
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
0 40 80 120 160 200 240 280 320 360
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018

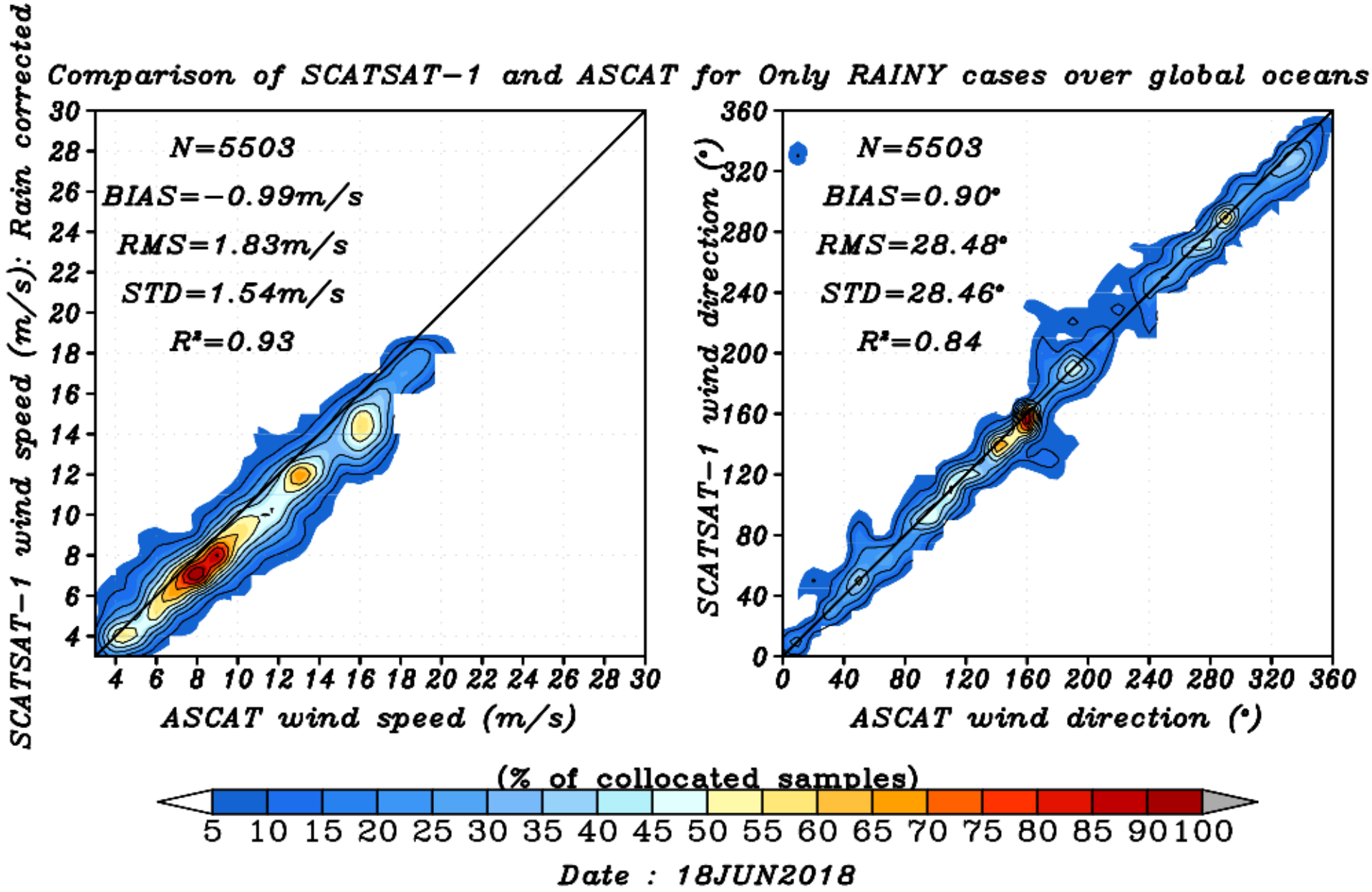

Comparison of SCATSAT-1 and ASCAT for all passes over Northern Hemisphere
N=30148
BIAS=-0.04m/s
RMS=1.01m/s
STD=1.01m/s
R²=0.96
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
N=30148
BIAS=0.80°
RMS=17.89°
STD=17.87°
R²=0.90
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018


Comparison of SCATSAT-1 and ASCAT for all passes over Tropics
N=48723
BIAS=0.22m/s
RMS=0.67m/s
STD=0.64m/s
R²=0.97
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
4 6 8 10 12 14 16 18 20 22 24 26 28 30
N=48723
BIAS=−0.76°
RMS=15.12°
STD=15.10°
R²=0.86
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
0 40 80 120 160 200 240 280 320 360
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018


Comparison of SCATSAT-1 and ASCAT for all passes over Southern Hemisphere
N=56637
BIAS=-0.11m/s
RMS=1.03m/s
STD=1.02m/s
R²=0.97
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
4 6 8 10 12 14 16 18 20 22 24 26 28 30
N=56637
BIAS=-1.09°
RMS=14.71°
STD=14.67°
R²=0.86
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
0 40 80 120 160 200 240 280 320 360
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018


Wind speed Histogram for all passes over global oceans
SCATSAT-1
ASCAT
Peak Normalized Histogram
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
2
4
6
8
10
12
14
16
18
20
22
24
26
SCATSAT-1 wind speed (m/s)
Date : 18JUN2018

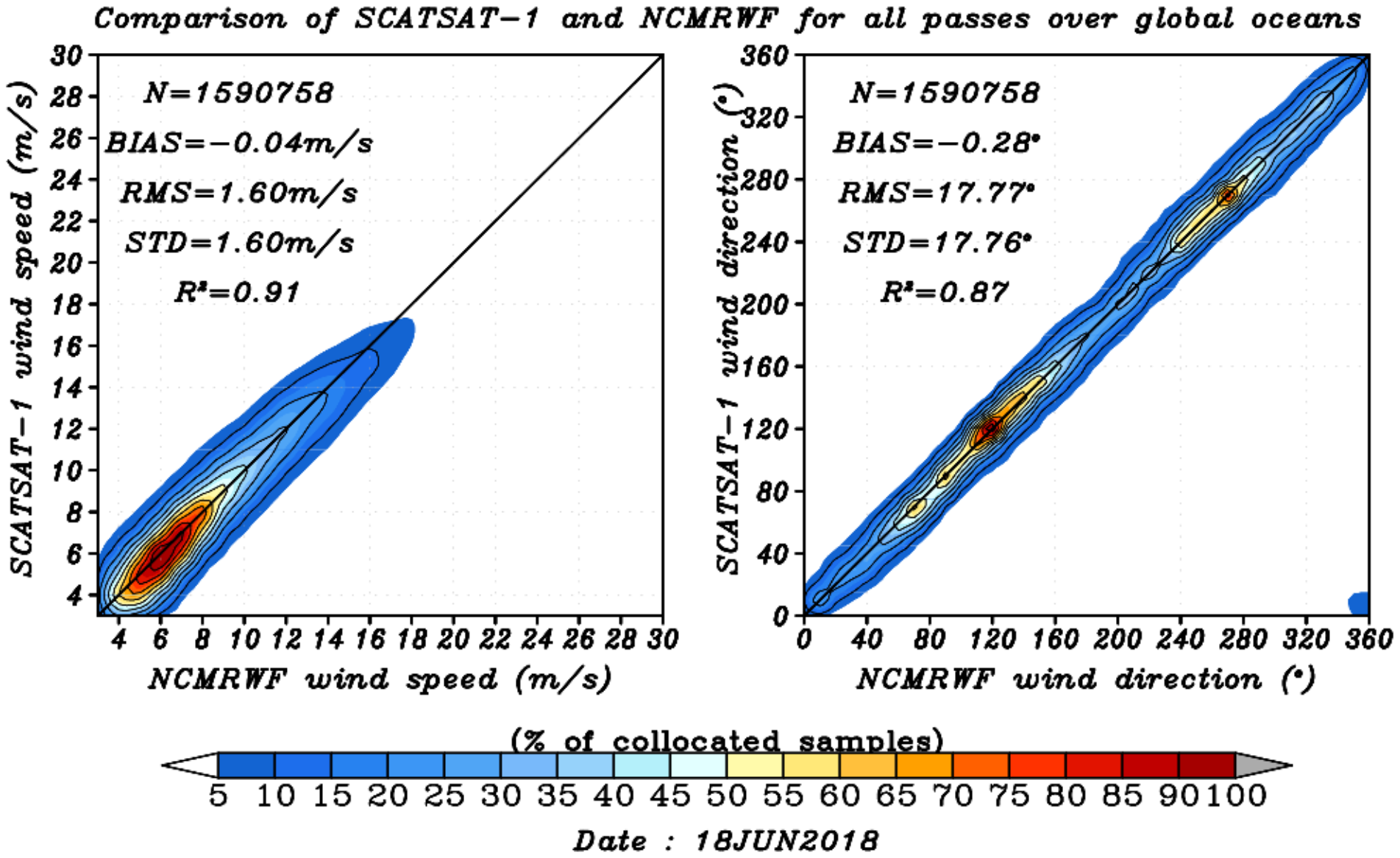

Comparison of SCATSAT-1 and ASCAT for Only RAINY cases over global oceans
SCATSAT-1 wind speed (m/s): without Rain correctio
N=5550
BIAS=1.57m/s
RMS=2.74m/s
STD=2.24m/s
R²=0.87
ASCAT wind speed (m/s)
SCATSAT-1 wind direction (°)
N=5550
BIAS=0.96°
RMS=29.37°
STD=29.36°
R²=0.84
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018

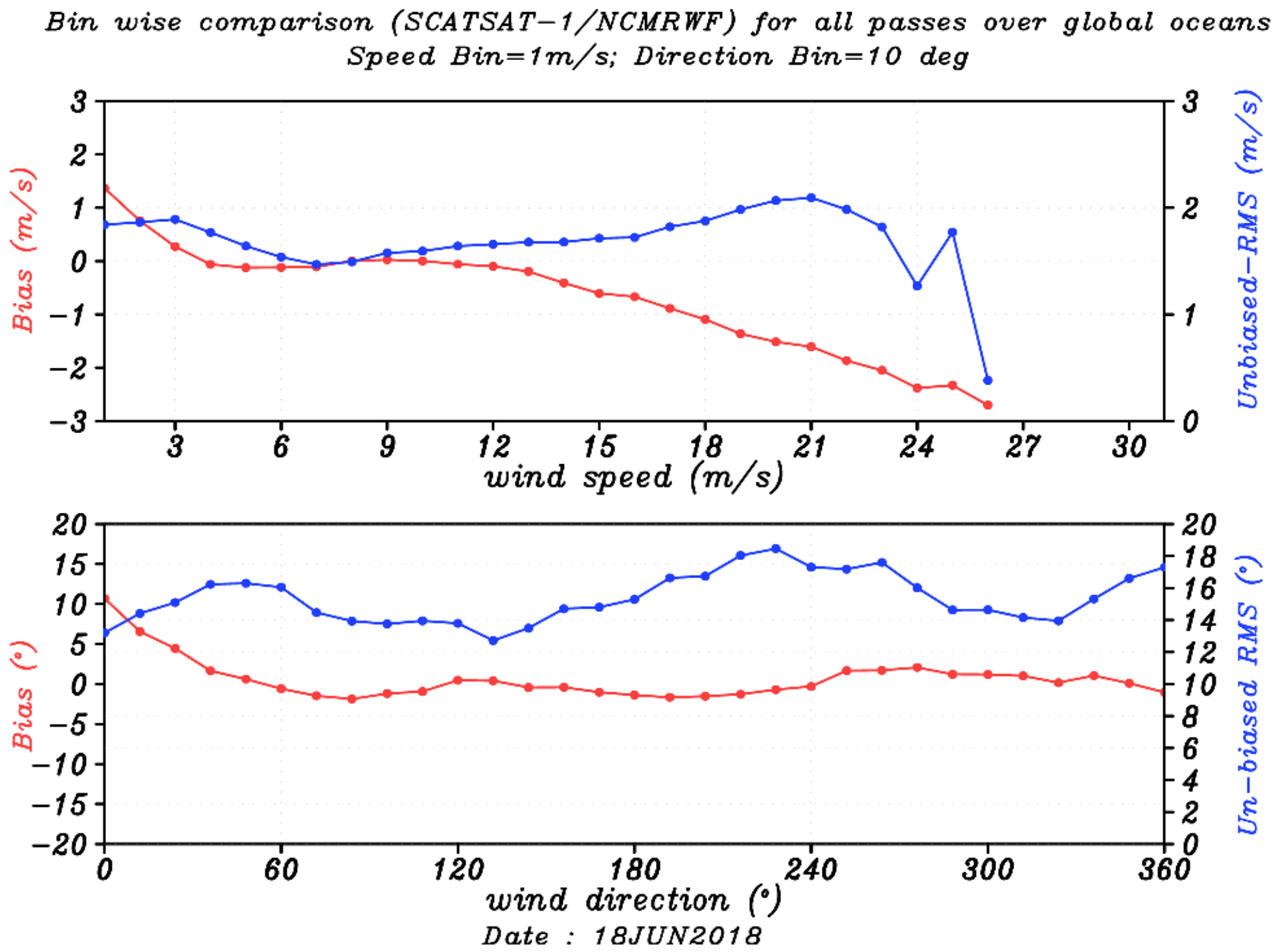

Comparison of SCATSAT-1 and ASCAT for Only RAINY cases over global oceans
SCATSAT-1 wind speed (m/s): Rain corrected
N=5503
BIAS=-0.99m/s
RMS=1.83m/s
STD=1.54m/s
R²=0.93
ASCAT wind speed (m/s)
SCATSAT-1 wind direction (°)
N=5503
BIAS=0.90°
RMS=28.48°
STD=28.46°
R²=0.84
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018

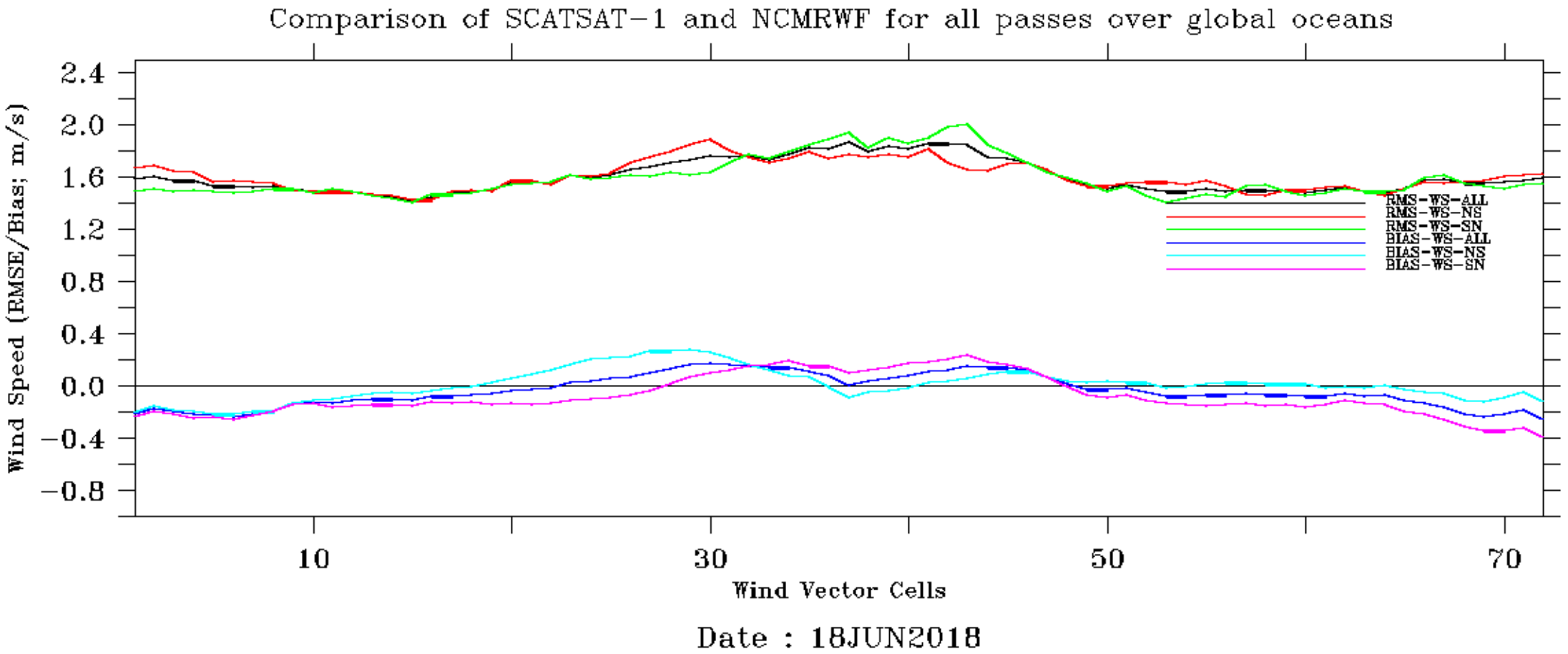
COMPARISON WITH NWP(NCMRWF)

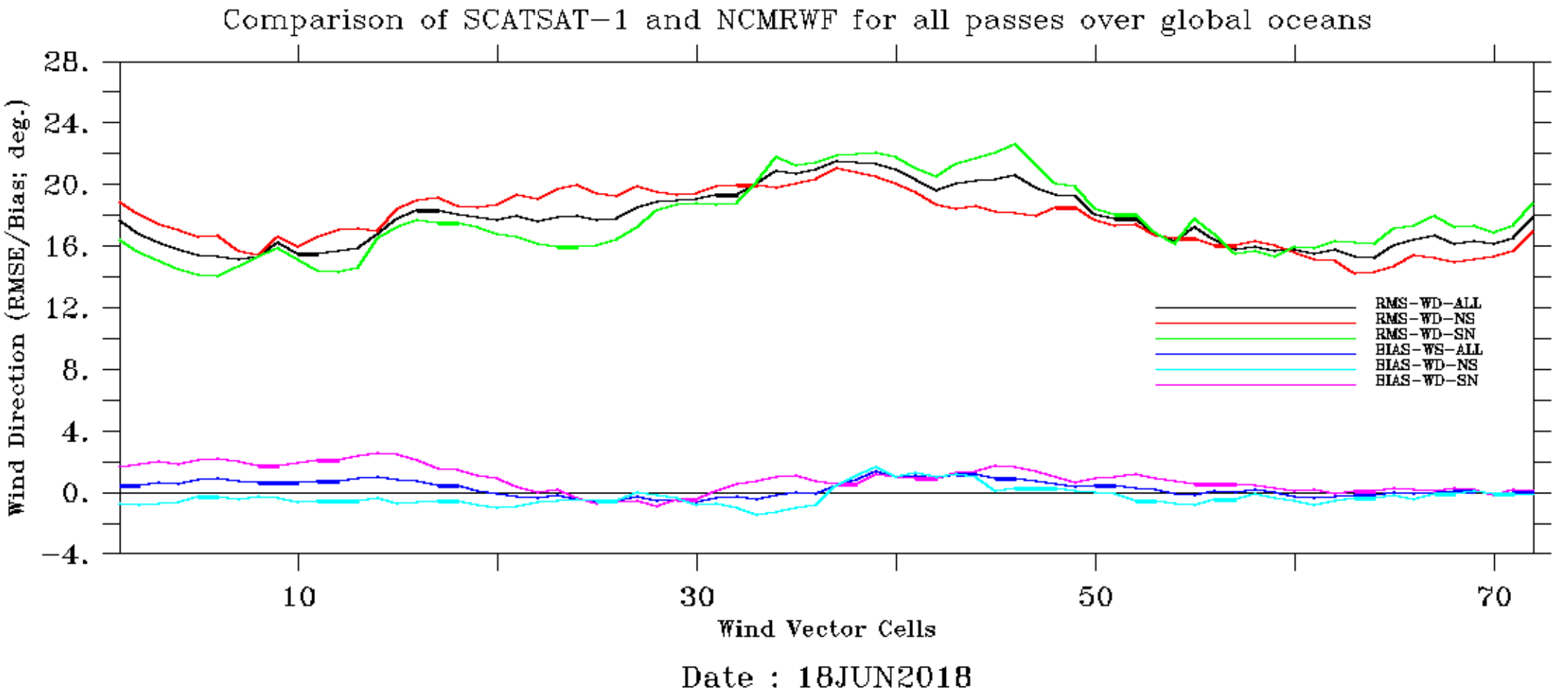
Date : 18JUN2018

Collocation: delR=0.25°; delT=+/−3 hr


Comparison of SCATSAT−1 and NCMRWF for all passes over global oceans
N=1590758
BIAS=−0.04m/s
RMS=1.60m/s
STD=1.60m/s
R²=0.91
SCATSAT−1 wind speed (m/s)
NCMRWF wind speed (m/s)
4 6 8 10 12 14 16 18 20 22 24 26 28 30
N=1590758
BIAS=−0.28°
RMS=17.77°
STD=17.76°
R²=0.87
SCATSAT−1 wind direction (°)
NCMRWF wind direction (°)
0 40 80 120 160 200 240 280 320 360
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 18JUN2018


Bin wise comparison (SCATSAT-1/NCMRWF) for all passes over global oceans
Speed Bin=1m/s; Direction Bin=10 deg
Bias (m/s)
Unbiased-RMS (m/s)
wind speed (m/s)
Bias (°)
Un-biased RMS (°)
wind direction (°)
Date : 18JUN2018


Comparison of SCATSAT-1 and NCMRWF for all passes over global oceans
Wind Speed (RMSE/Bias; m/s)
2.4
2.0
1.6
1.2
0.8
0.4
0.0
-0.4
-0.8
10
30
50
70
Wind Vector Cells
RMS-WS-ALL
RMS-WS-NS
RMS-WS-SN
BIAS-WS-ALL
BIAS-WS-NS
BIAS-WS-SN
Date : 18JUN2018


Comparison of SCATSAT-1 and NCMRWF for all passes over global oceans
Wind Direction (RMSE/Bias; deg.)
28.
24.
20.
16.
12.
8.
4.
0.
-4.
10
30
50
70
Wind Vector Cells
RMS-WD-ALL
RMS-WD-NS
RMS-WD-SN
BIAS-WS-ALL
BIAS-WD-NS
BIAS-WD-SN
Date : 18JUN2018