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

Date : 13NOV2019

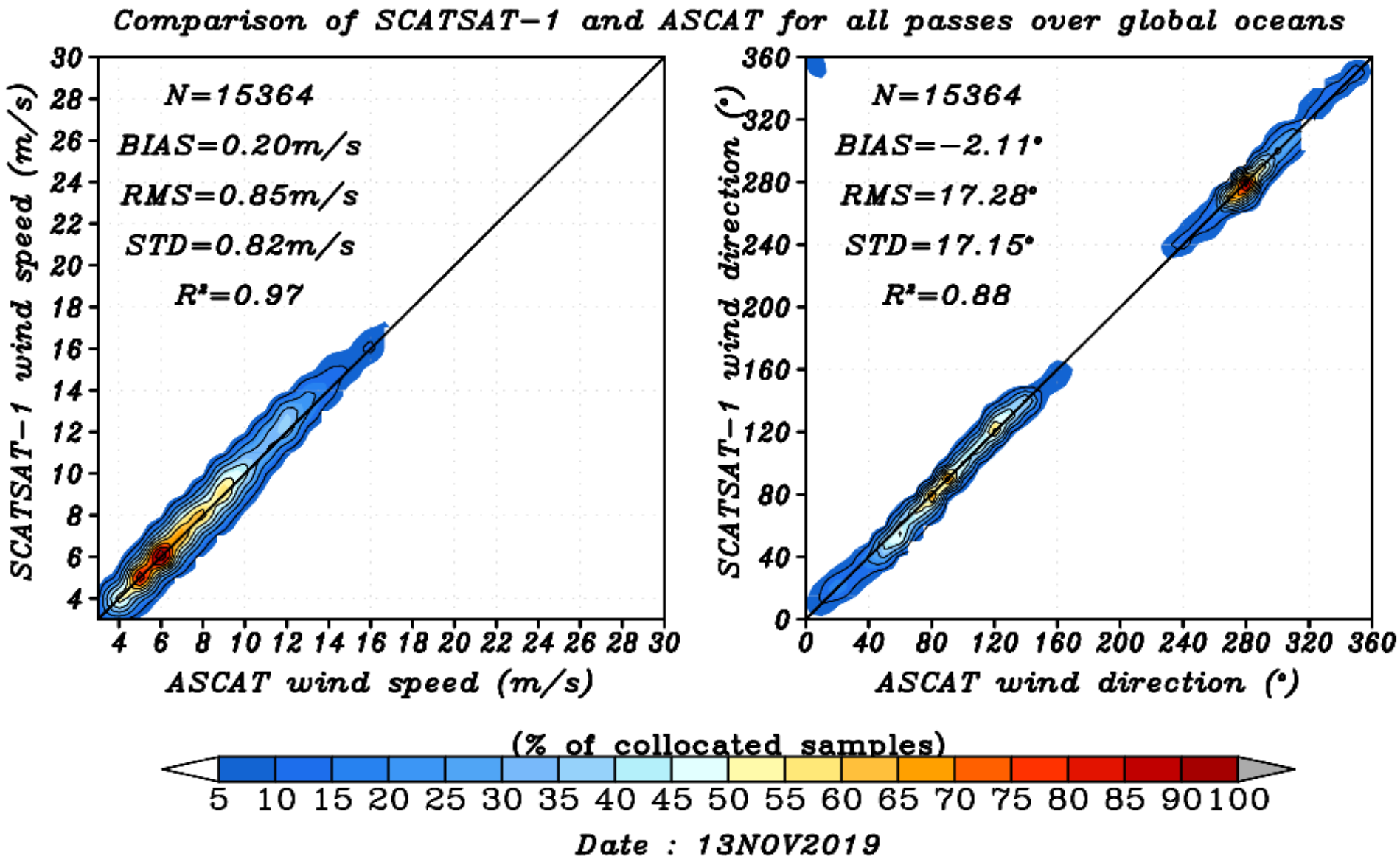
This automated validation is based on comparison with ASCAT & NCMRWF data

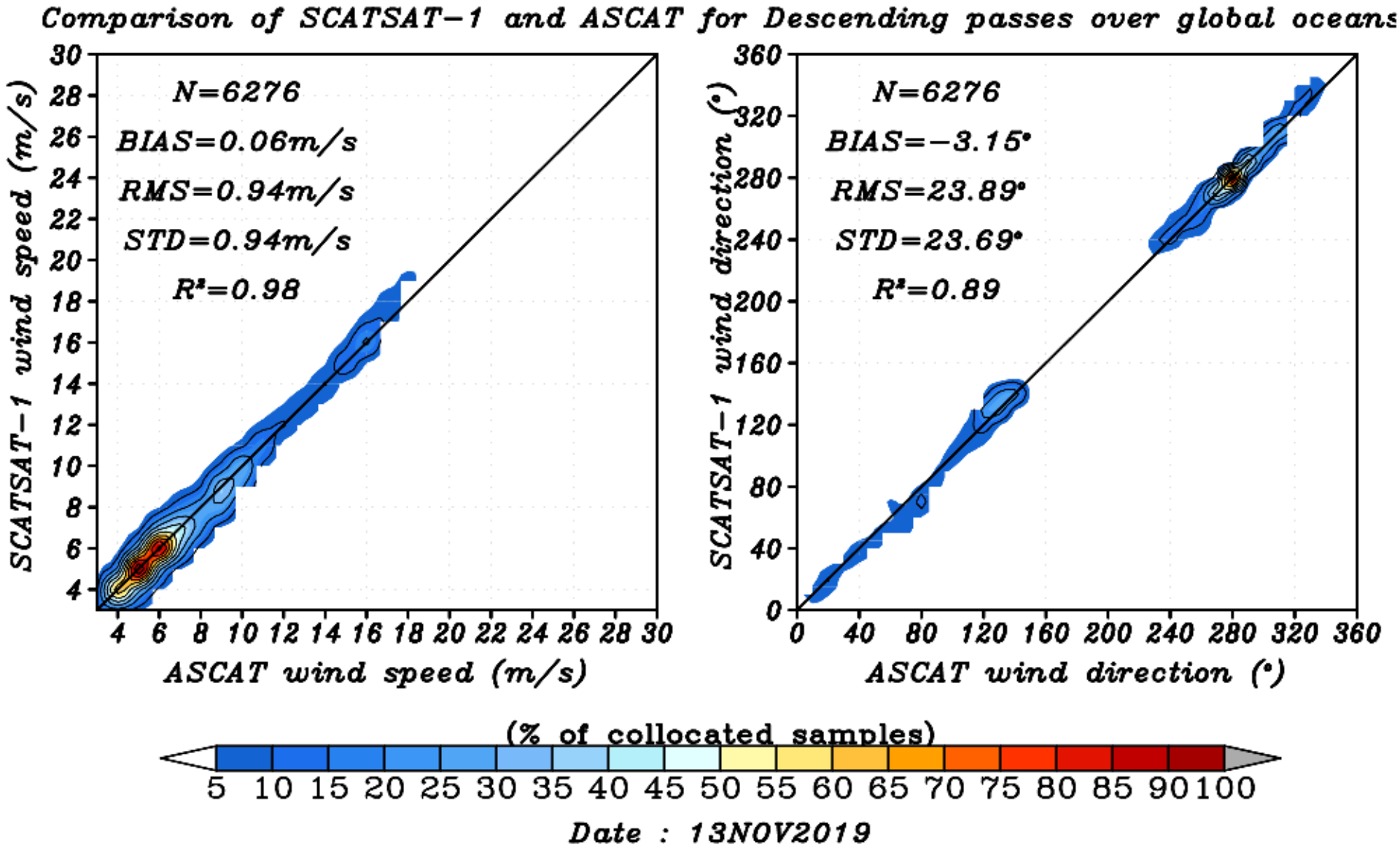
Originating Unit : GRD/AOSG/EPSA/SAC/ISRO

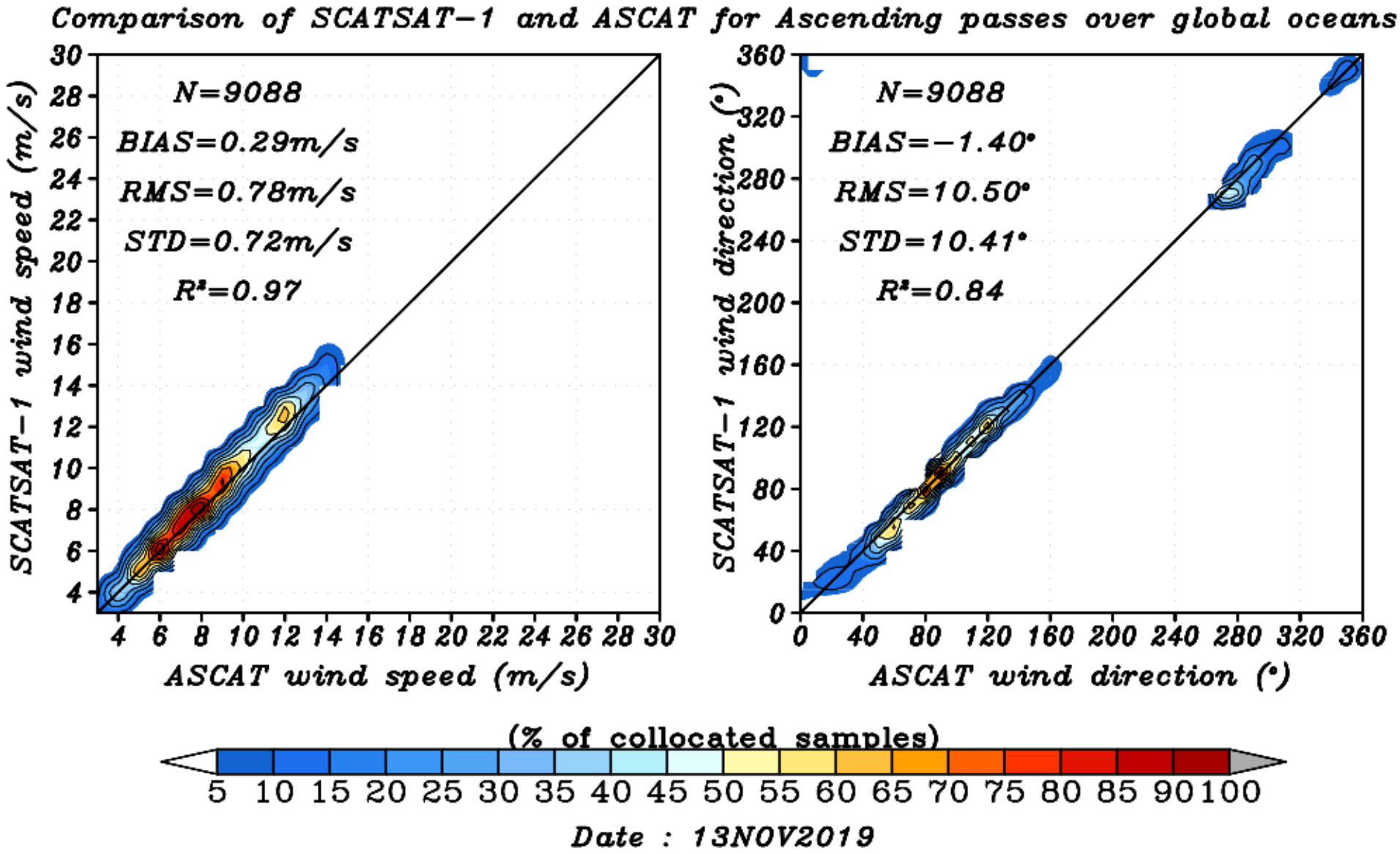
COMPARISON WITH ASCAT

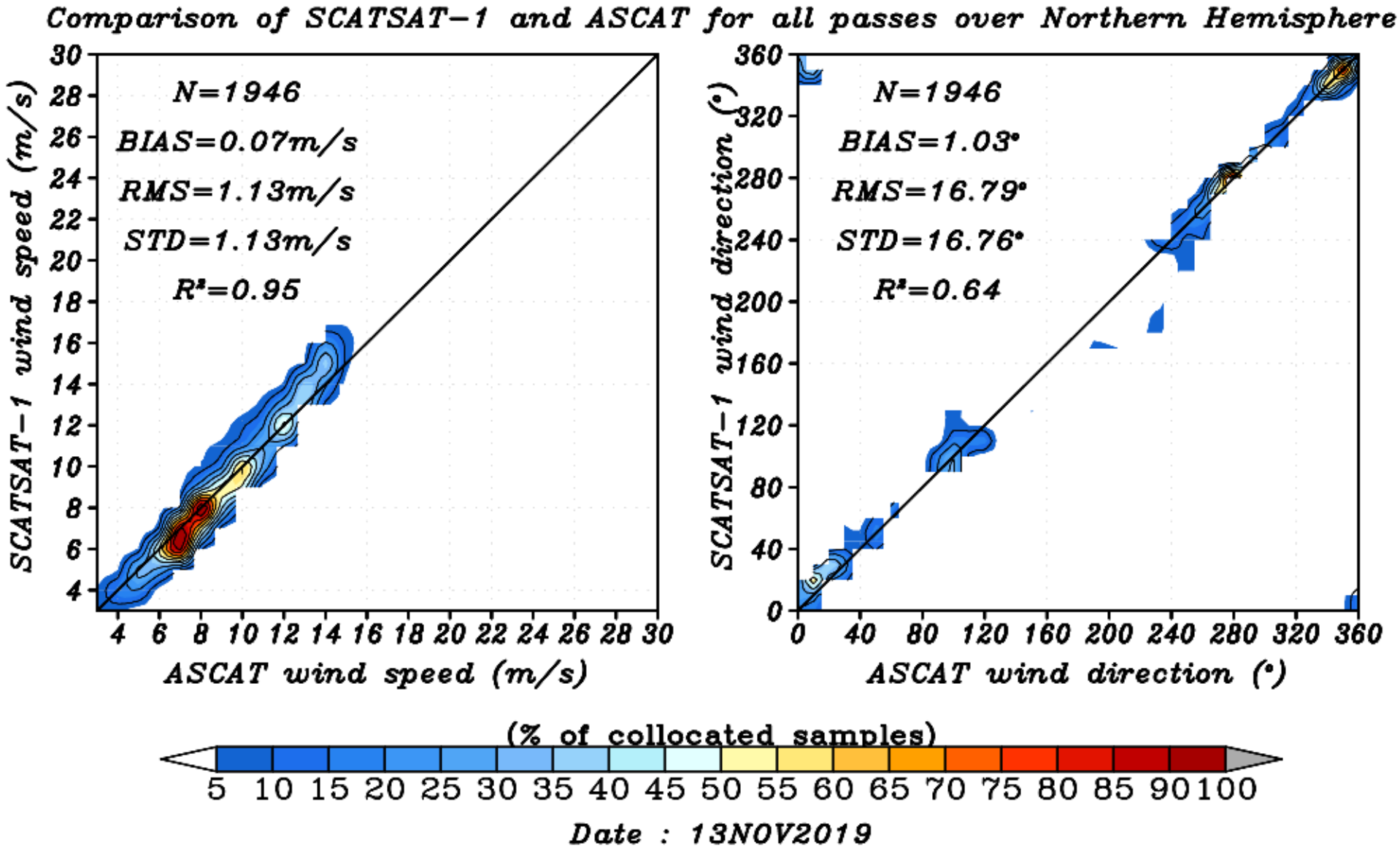
Date : 13NOV2019

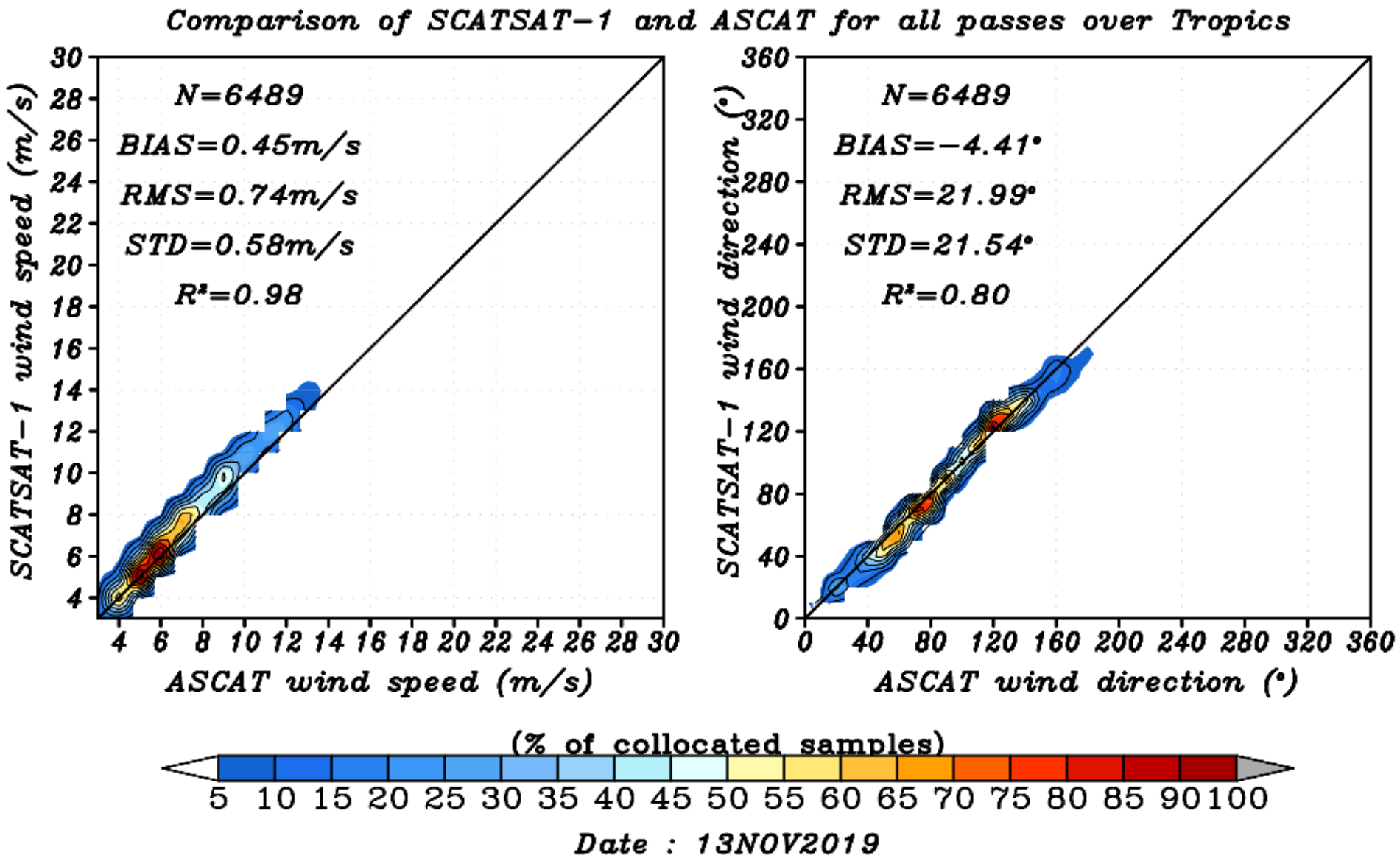
Collocation: delR = 0.25°; delT = 0.5 hr

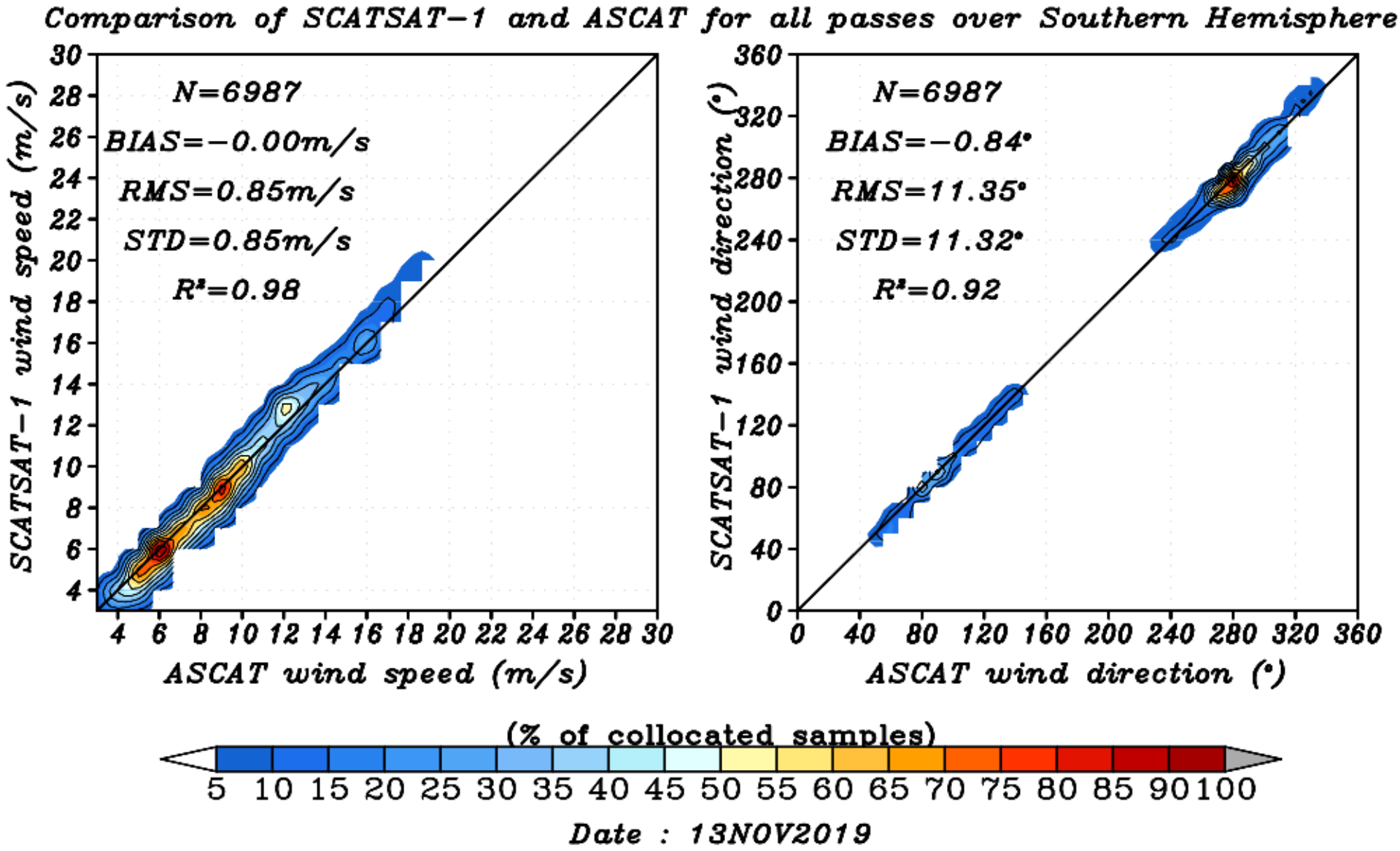

Comparison of SCATSAT−1 and ASCAT for all passes over global oceans
N=15364
BIAS=0.20m/s
RMS=0.85m/s
STD=0.82m/s
R²=0.97
SCATSAT−1 wind speed (m/s)
ASCAT wind speed (m/s)
4 6 8 10 12 14 16 18 20 22 24 26 28 30
N=15364
BIAS=−2.11°
RMS=17.28°
STD=17.15°
R²=0.88
SCATSAT−1 wind direction (°)
ASCAT wind direction (°)
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 : 13NOV2019

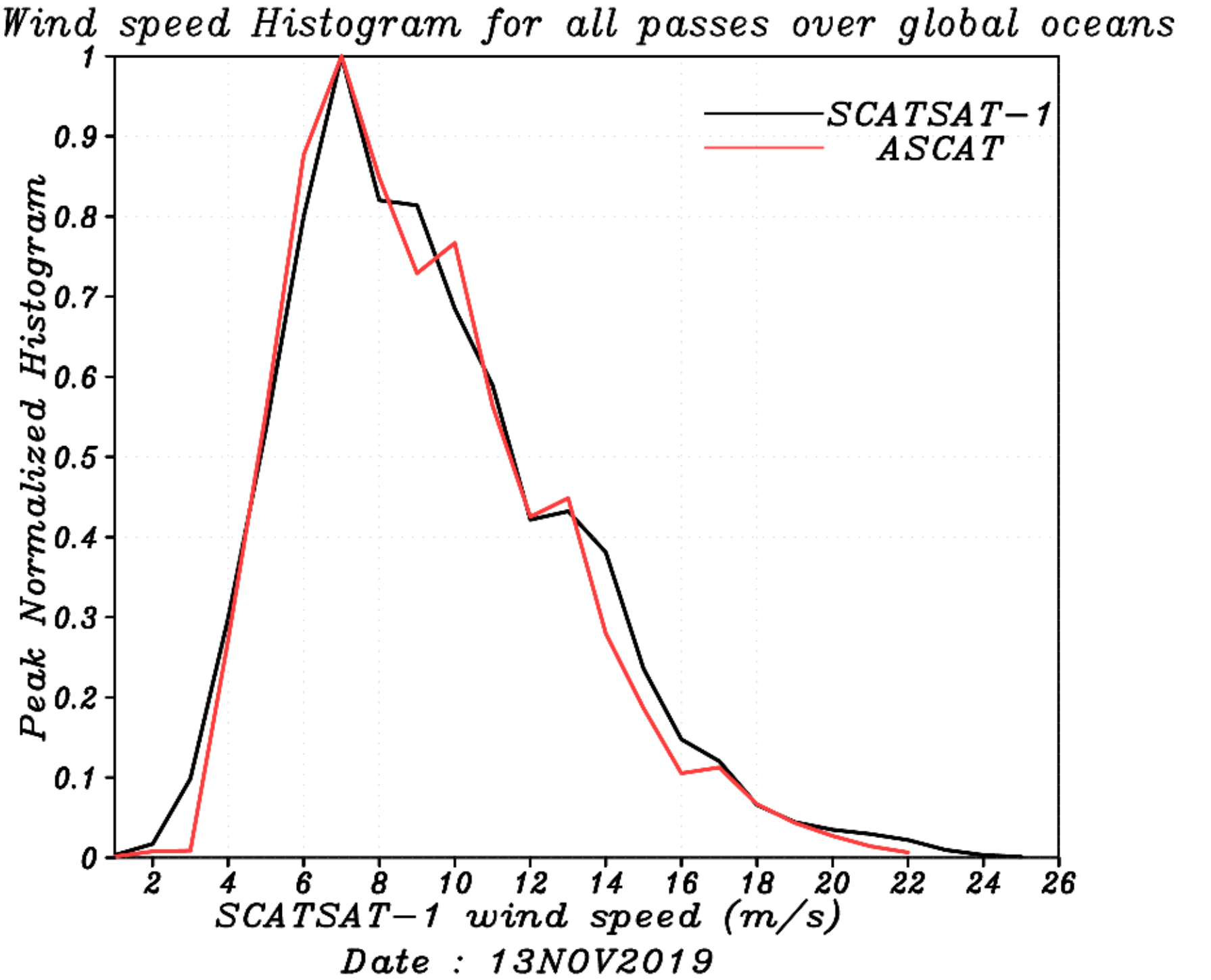

Comparison of SCATSAT-1 and ASCAT for Descending passes over global oceans
N=6276
BIAS=0.06m/s
RMS=0.94m/s
STD=0.94m/s
R²=0.98
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
N=6276
BIAS=-3.15°
RMS=23.89°
STD=23.69°
R²=0.89
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 13NOV2019

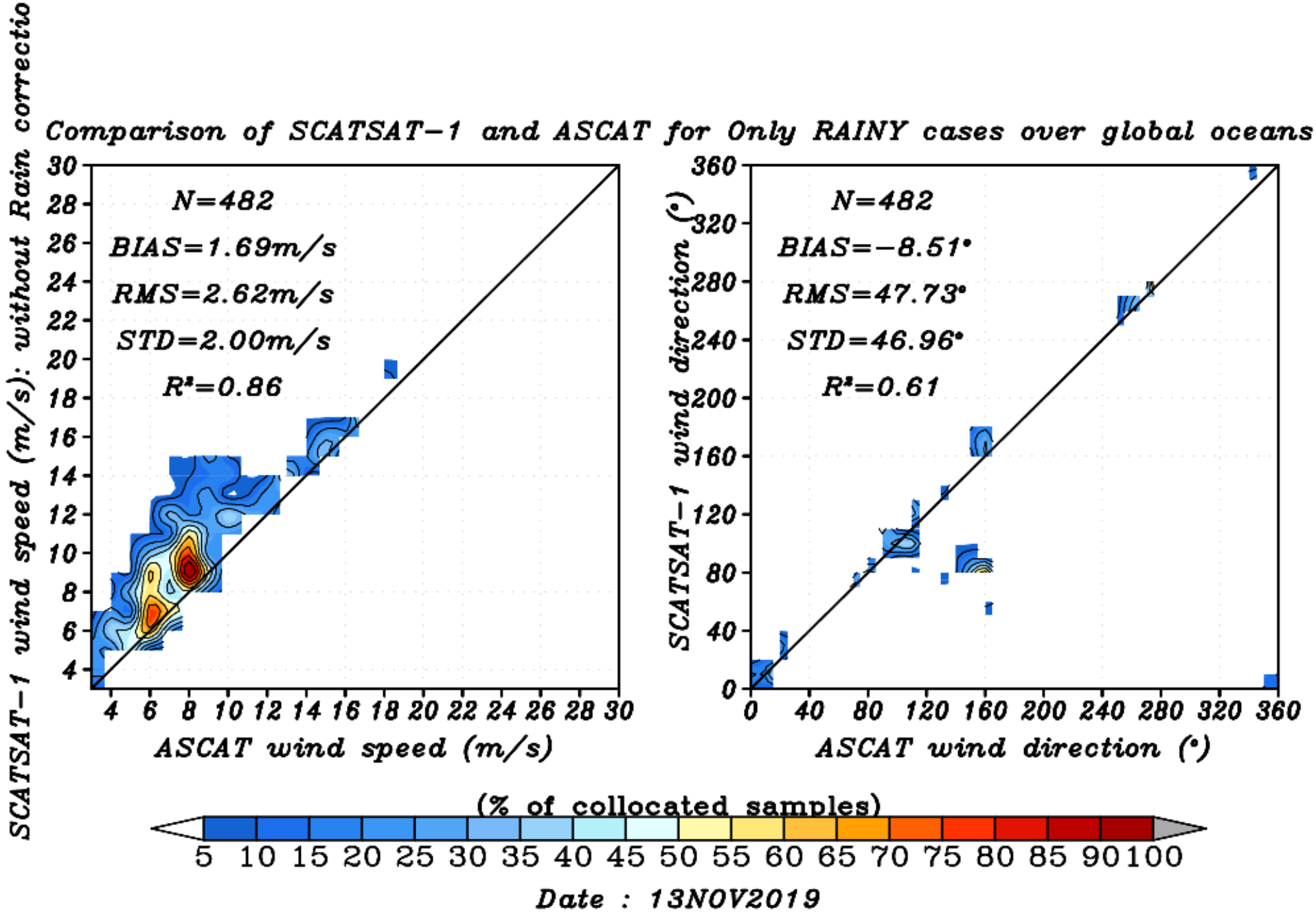

Comparison of SCATSAT-1 and ASCAT for Ascending passes over global oceans
N=9088
BIAS=0.29m/s
RMS=0.78m/s
STD=0.72m/s
R²=0.97
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
4 6 8 10 12 14 16 18 20 22 24 26 28 30
N=9088
BIAS=−1.40°
RMS=10.50°
STD=10.41°
R²=0.84
SCATSAT-1 wind direction (°)
ASCAT wind 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 : 13NOV2019

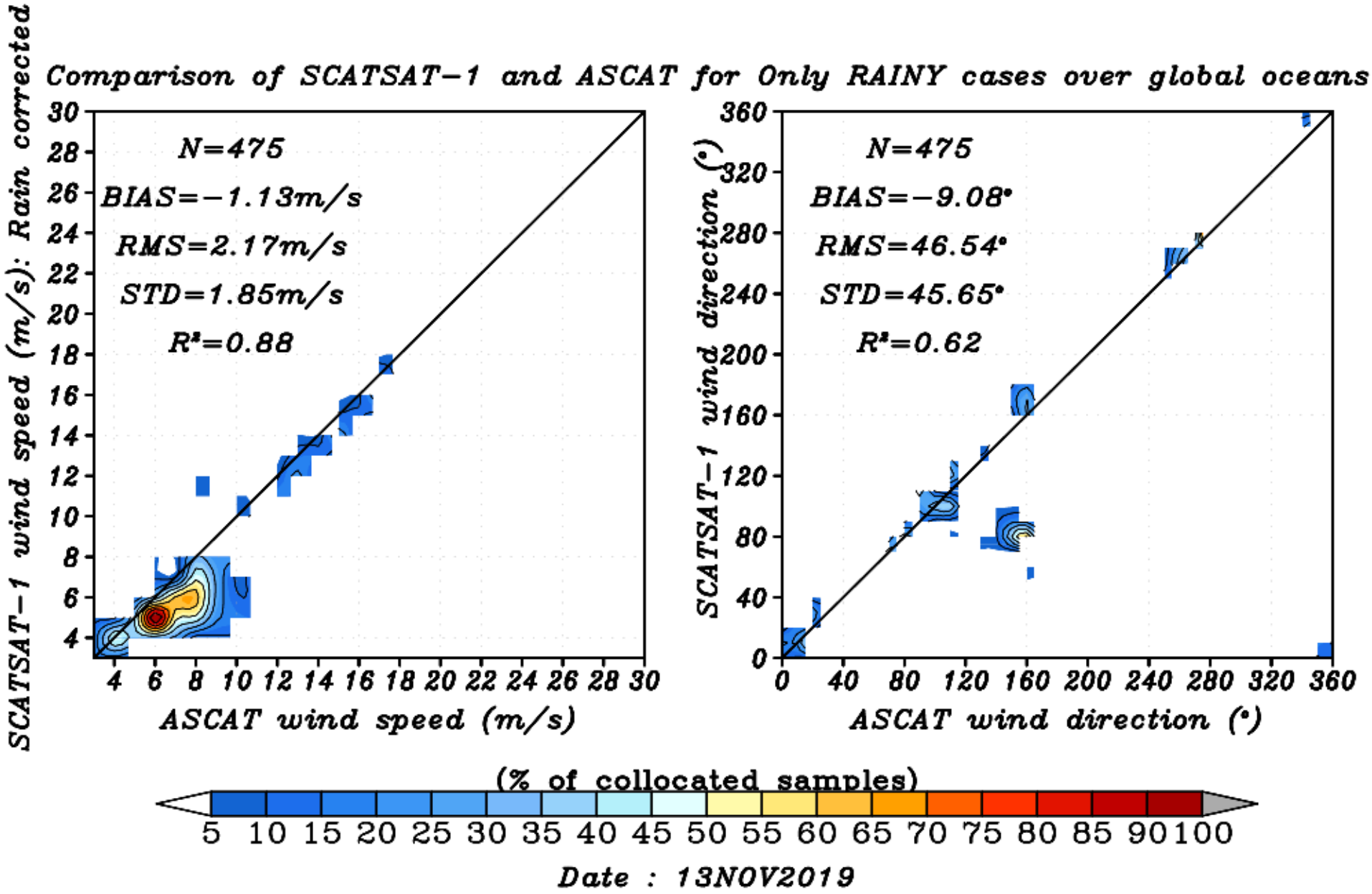

Comparison of SCATSAT-1 and ASCAT for all passes over Northern Hemisphere
N=1946
BIAS=0.07m/s
RMS=1.13m/s
STD=1.13m/s
R²=0.95
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
N=1946
BIAS=1.03°
RMS=16.79°
STD=16.76°
R²=0.64
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 13NOV2019


Comparison of SCATSAT-1 and ASCAT for all passes over Tropics
N=6489
BIAS=0.45m/s
RMS=0.74m/s
STD=0.58m/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=6489
BIAS=−4.41°
RMS=21.99°
STD=21.54°
R²=0.80
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 : 13NOV2019


Comparison of SCATSAT-1 and ASCAT for all passes over Southern Hemisphere
N=6987
BIAS=-0.00m/s
RMS=0.85m/s
STD=0.85m/s
R²=0.98
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
N=6987
BIAS=-0.84°
RMS=11.35°
STD=11.32°
R²=0.92
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 : 13NOV2019


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 : 13NOV2019

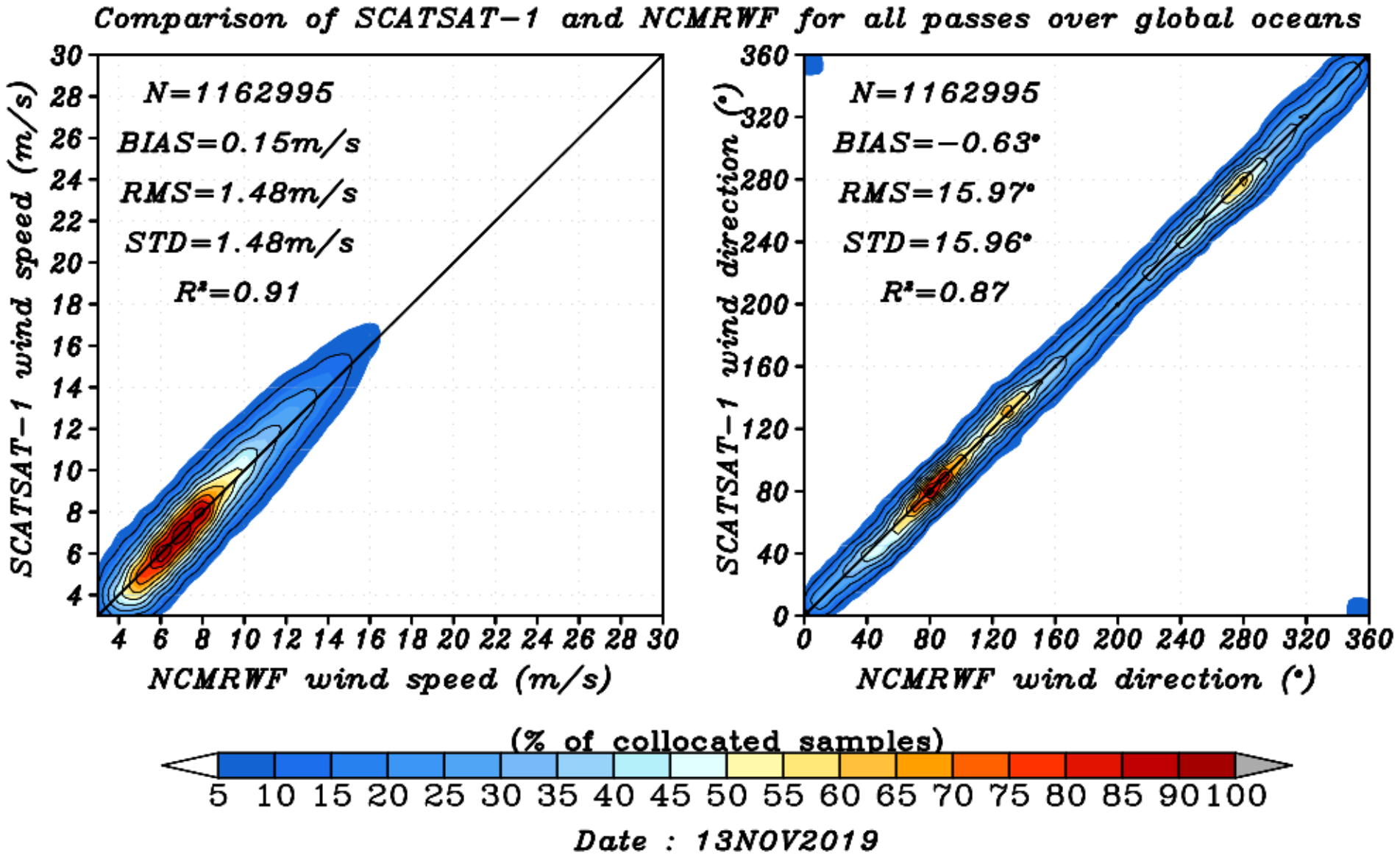

Comparison of SCATSAT-1 and ASCAT for Only RAINY cases over global oceans
SCATSAT-1 wind speed (m/s): without Rain correctio
N=482
BIAS=1.69m/s
RMS=2.62m/s
STD=2.00m/s
R²=0.86
ASCAT wind speed (m/s)
SCATSAT-1 wind direction (°)
N=482
BIAS=-8.51°
RMS=47.73°
STD=46.96°
R²=0.61
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 13NOV2019

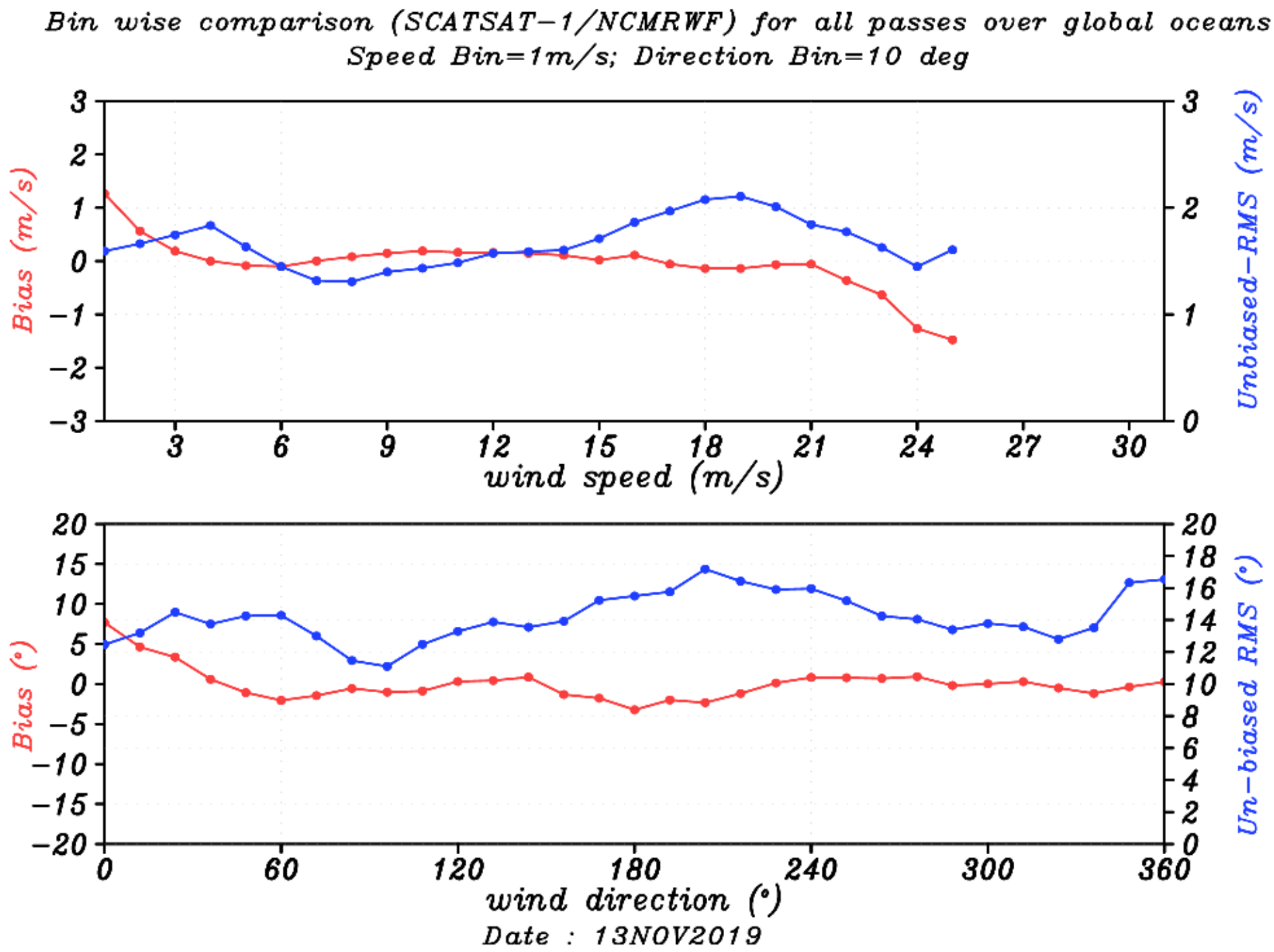

Comparison of SCATSAT-1 and ASCAT for Only RAINY cases over global oceans
SCATSAT-1 wind speed (m/s): Rain corrected
N=475
BIAS=-1.13m/s
RMS=2.17m/s
STD=1.85m/s
R²=0.88
ASCAT wind speed (m/s)
SCATSAT-1 wind direction (°)
N=475
BIAS=-9.08°
RMS=46.54°
STD=45.65°
R²=0.62
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 13NOV2019

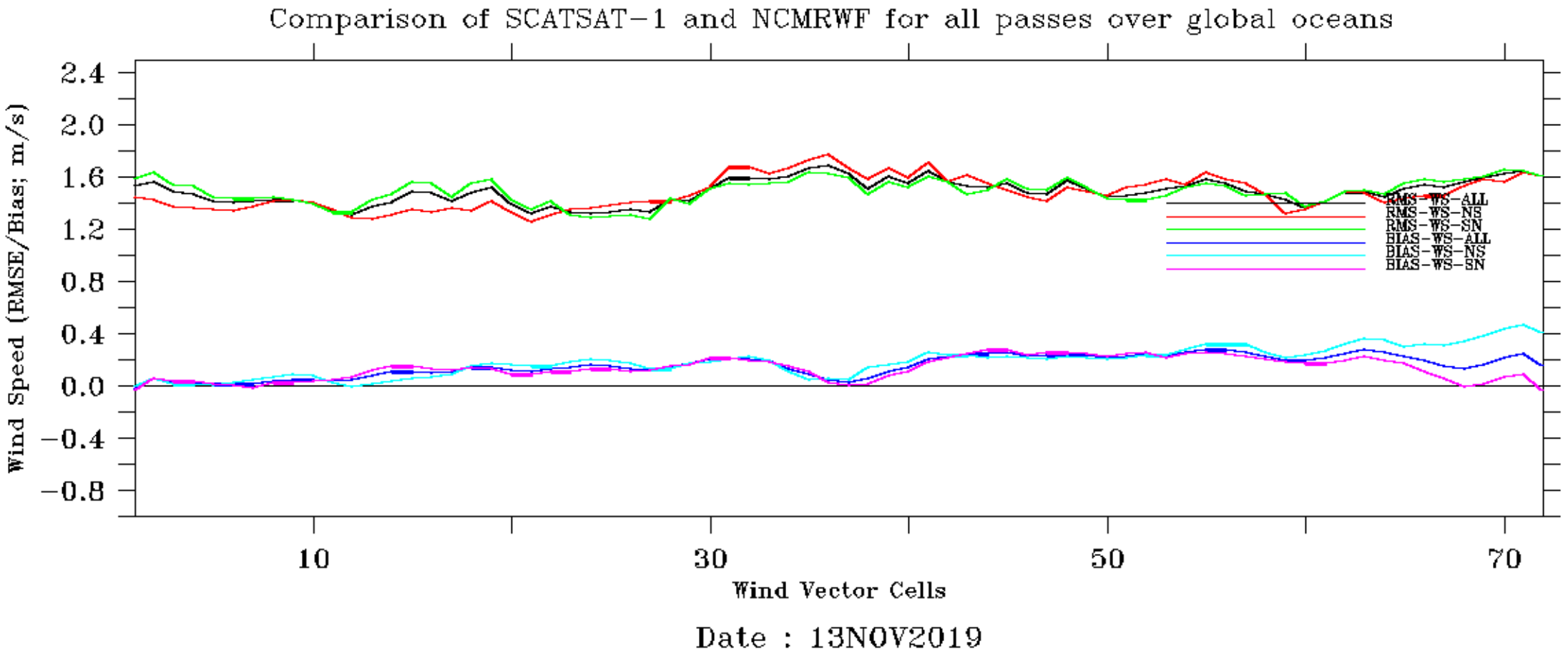
COMPARISON WITH NWP(NCMRWF)

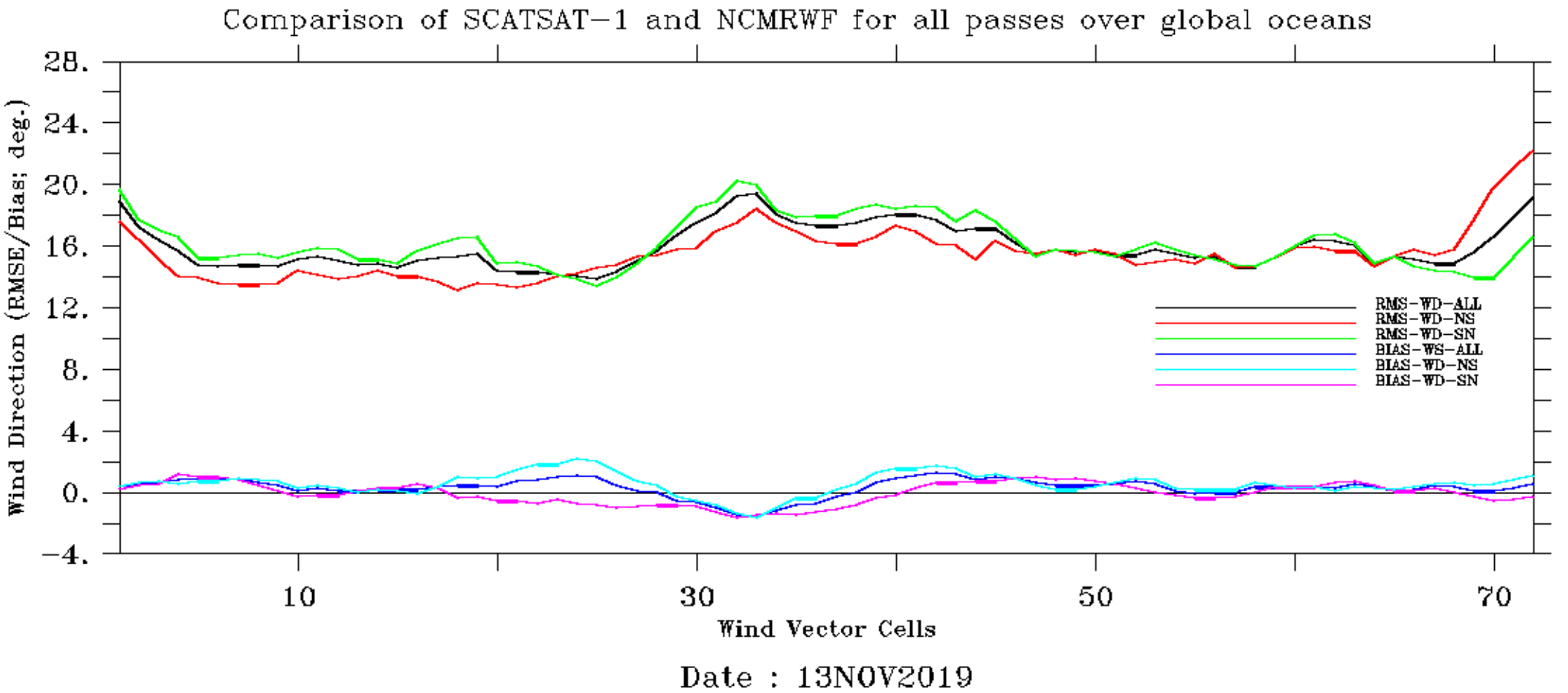
Date : 13NOV2019

Collocation: delR=0.25°; delT=+/−3 hr


Comparison of SCATSAT−1 and NCMRWF for all passes over global oceans
N=1162995
BIAS=0.15m/s
RMS=1.48m/s
STD=1.48m/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=1162995
BIAS=−0.63°
RMS=15.97°
STD=15.96°
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 : 13NOV2019


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 : 13NOV2019


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 : 13NOV2019


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 : 13NOV2019