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

Date : 05NOV2016

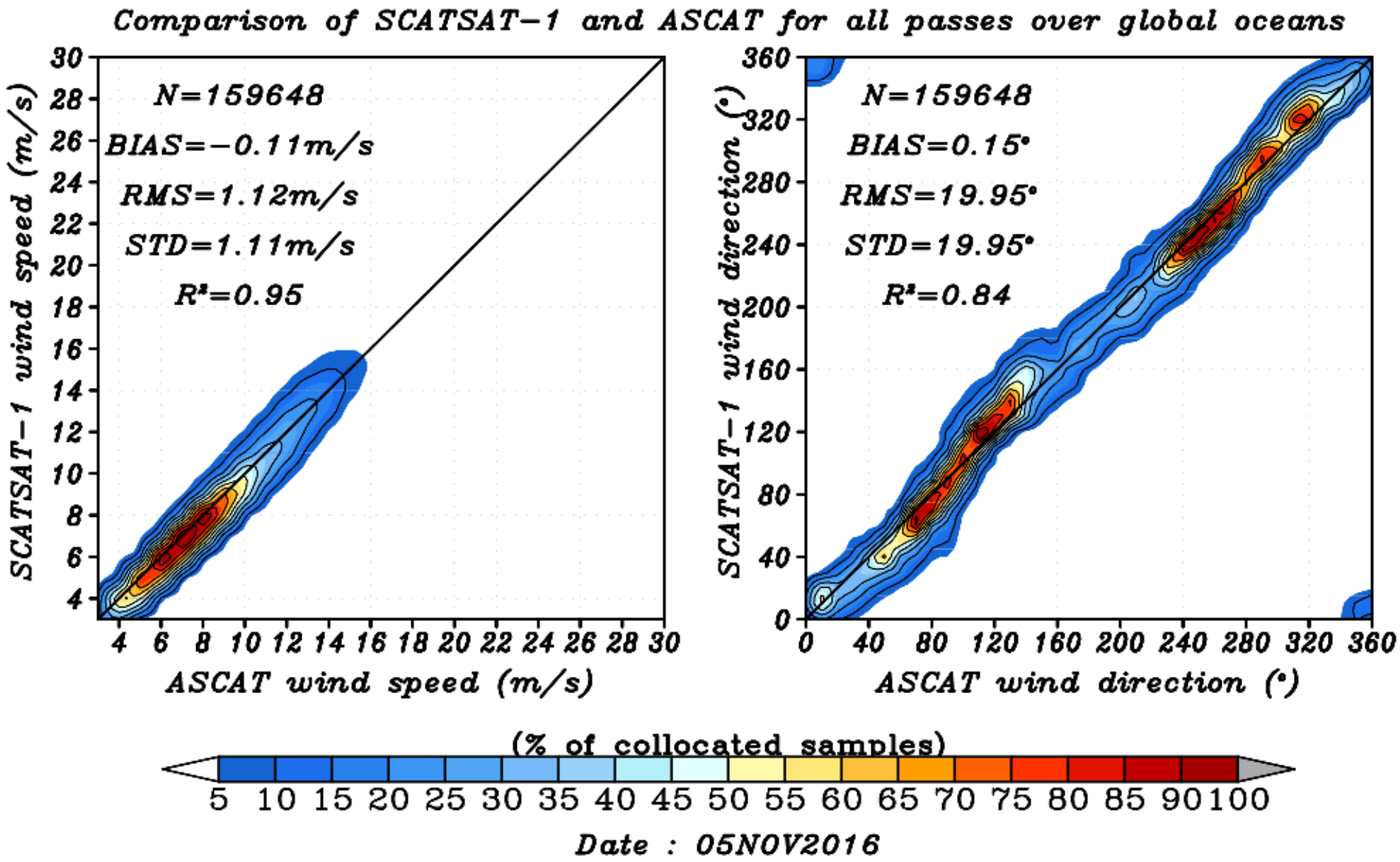
This automated validation is based on comparison with ASCAT & NCMRWF data

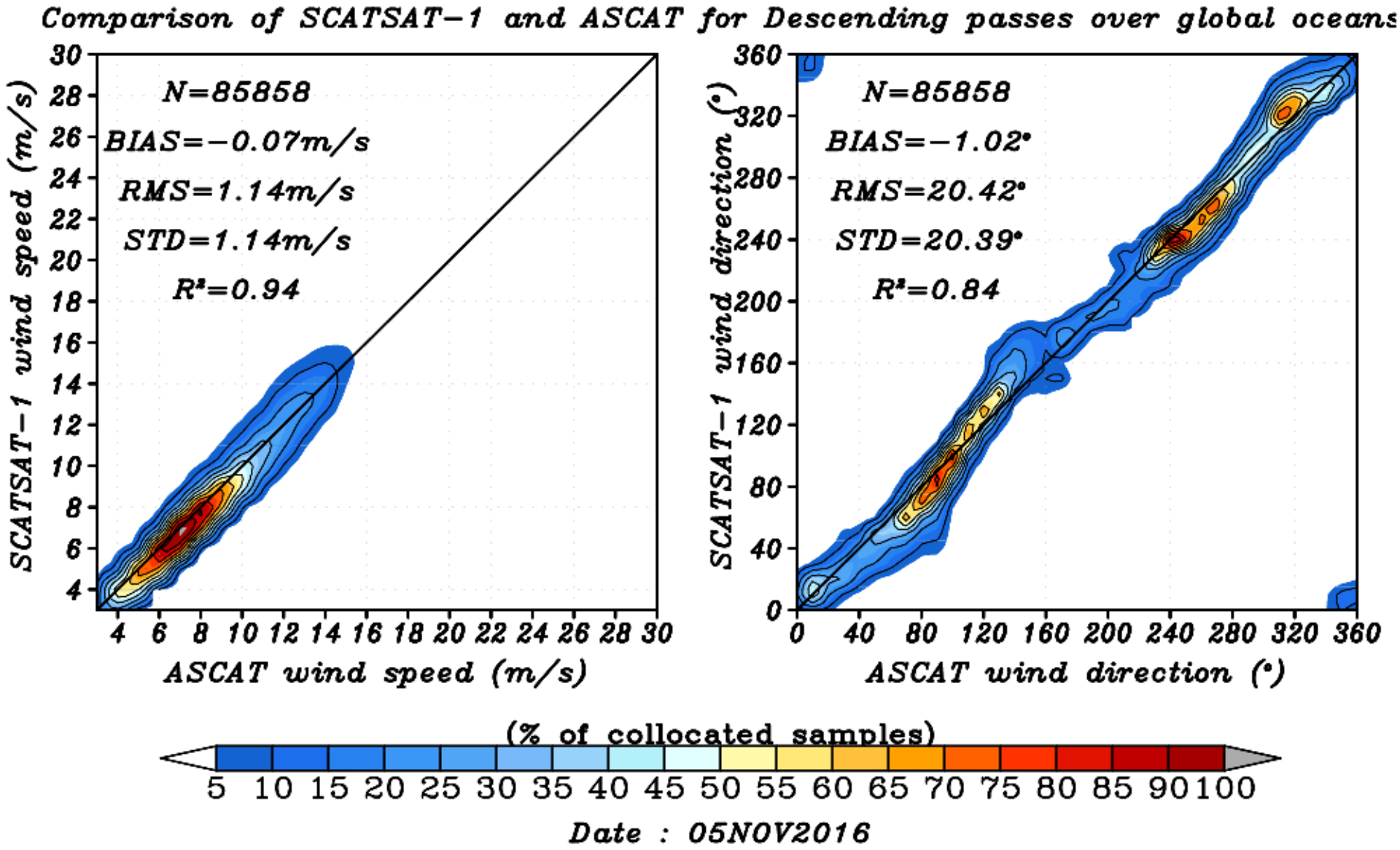
Originating Unit : OSD/AOSG/EPSA/SAC/ISRO

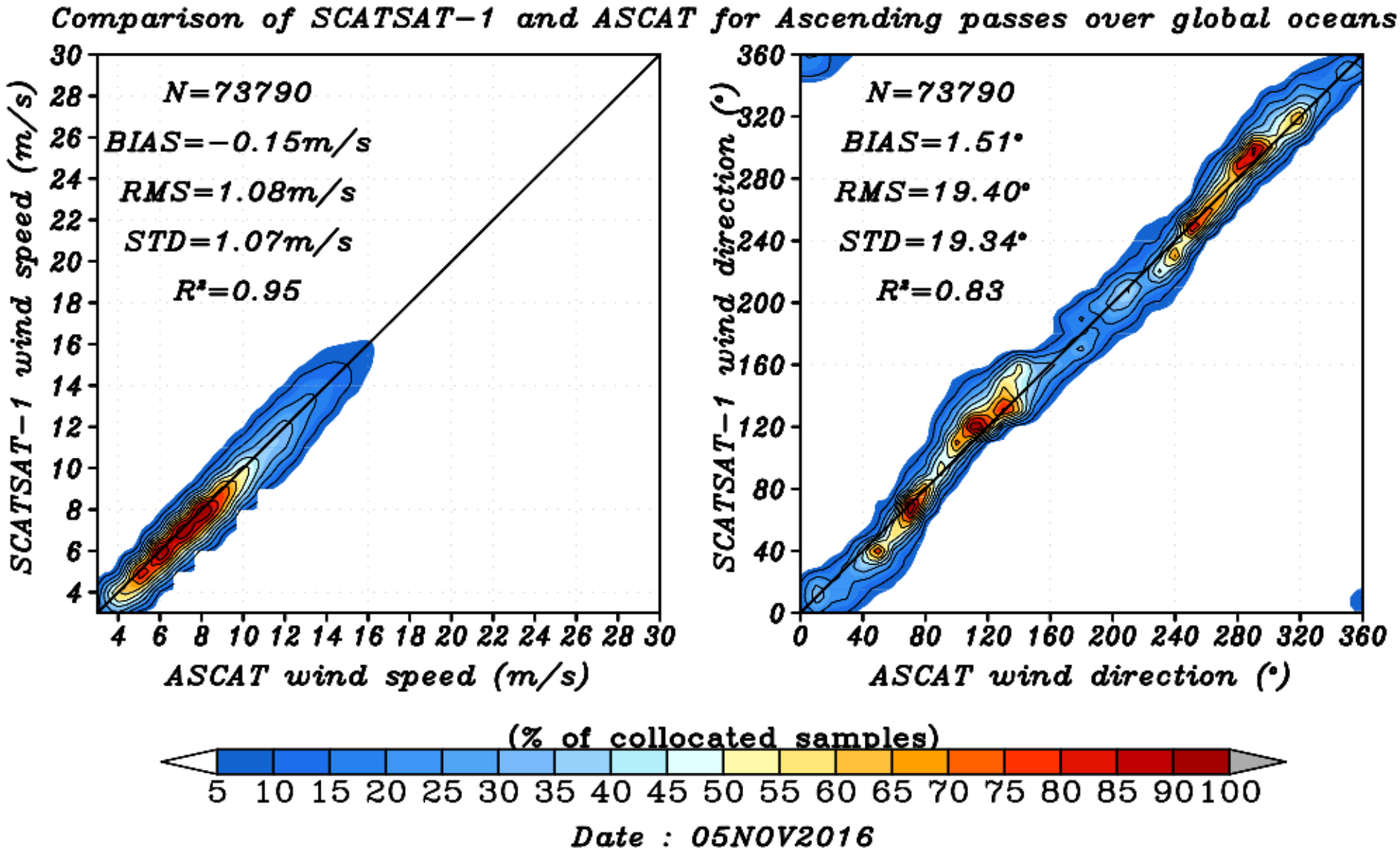
COMPARISON WITH ASCAT

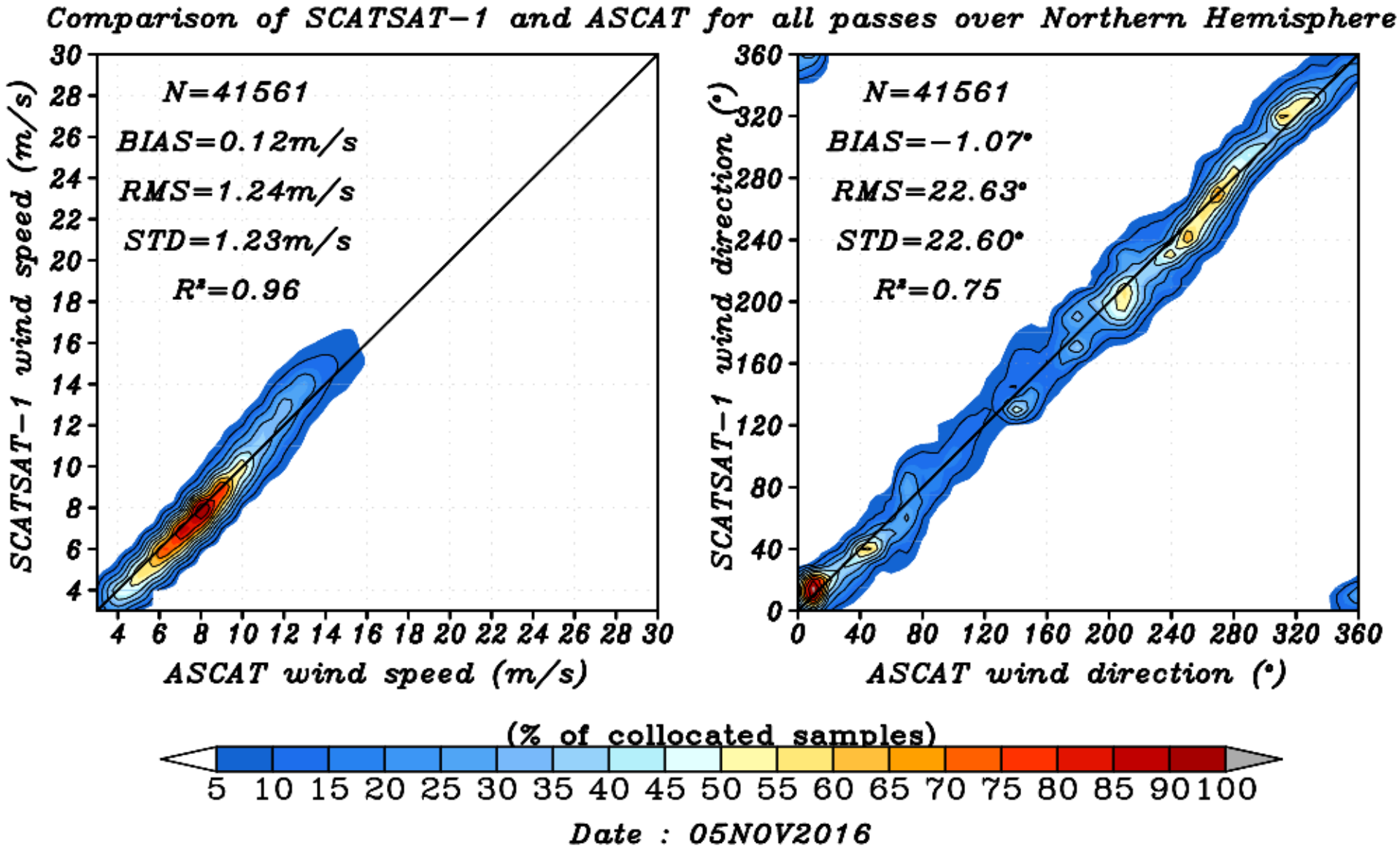
Date : 05NOV2016

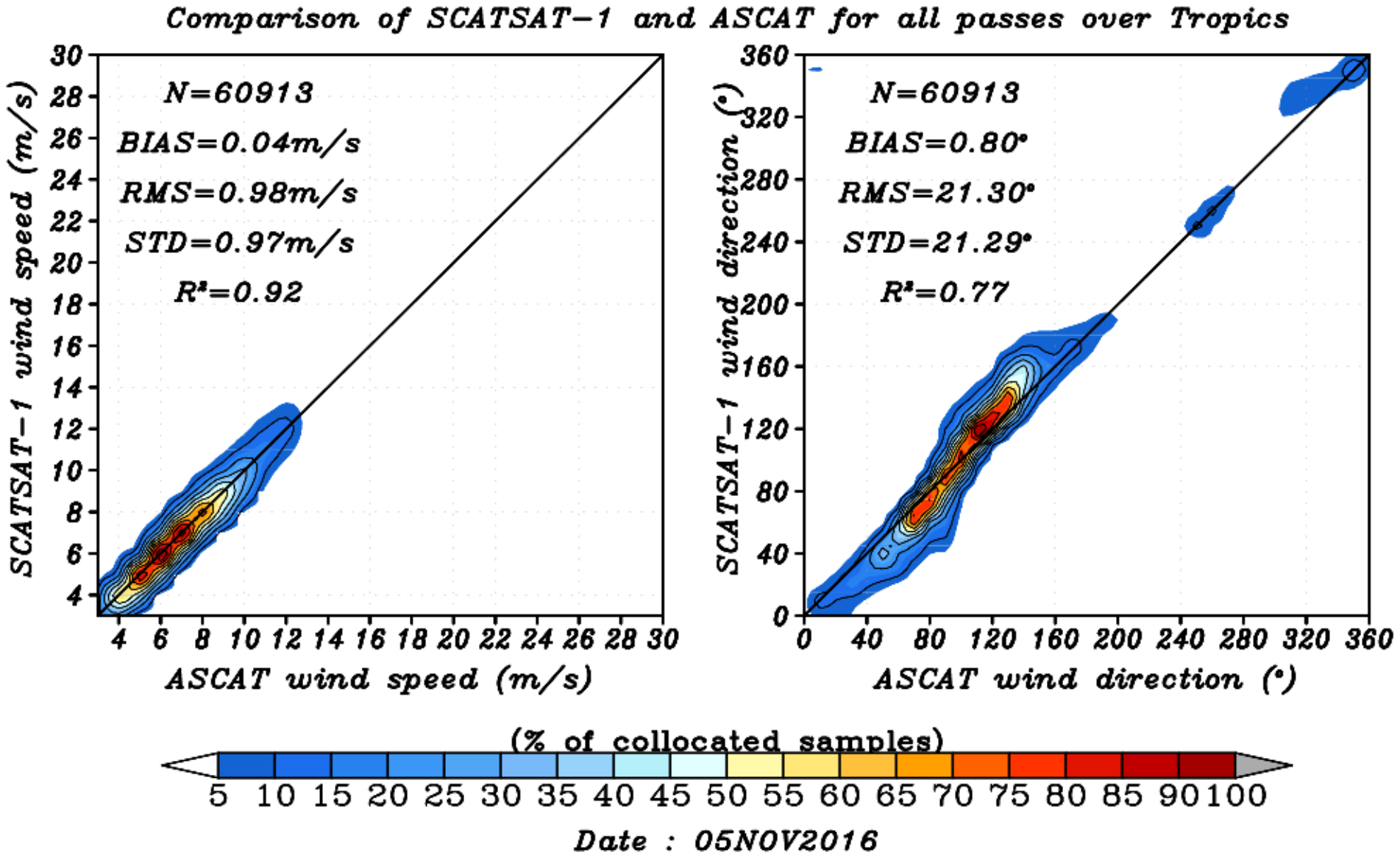
Collocation: delR = 0.25°; delT = 0.5 hr

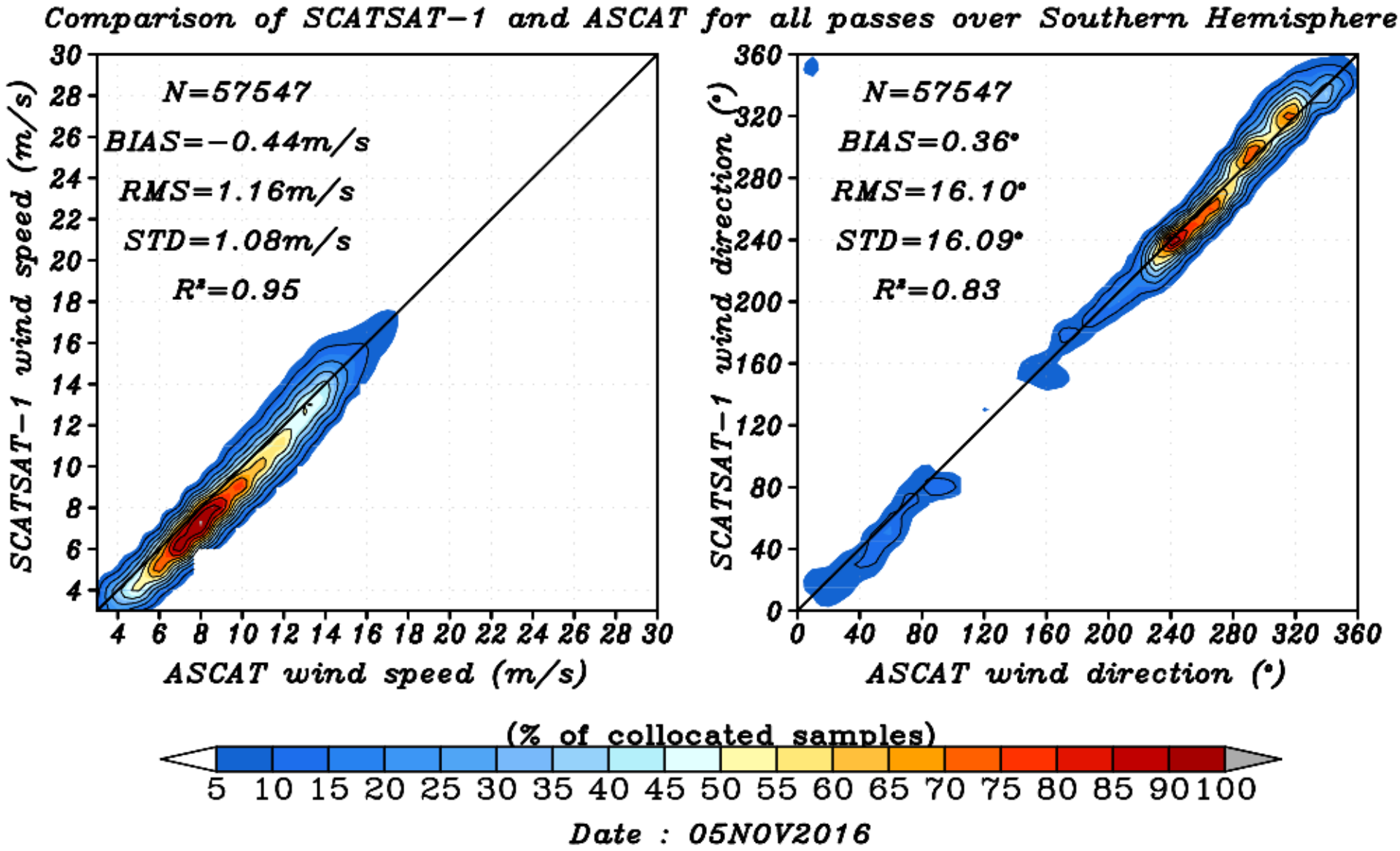

Comparison of SCATSAT−1 and ASCAT for all passes over global oceans
N=159648
BIAS=−0.11m/s
RMS=1.12m/s
STD=1.11m/s
R²=0.95
SCATSAT−1 wind speed (m/s)
ASCAT wind speed (m/s)
N=159648
BIAS=0.15°
RMS=19.95°
STD=19.95°
R²=0.84
SCATSAT−1 wind direction (°)
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 05NOV2016

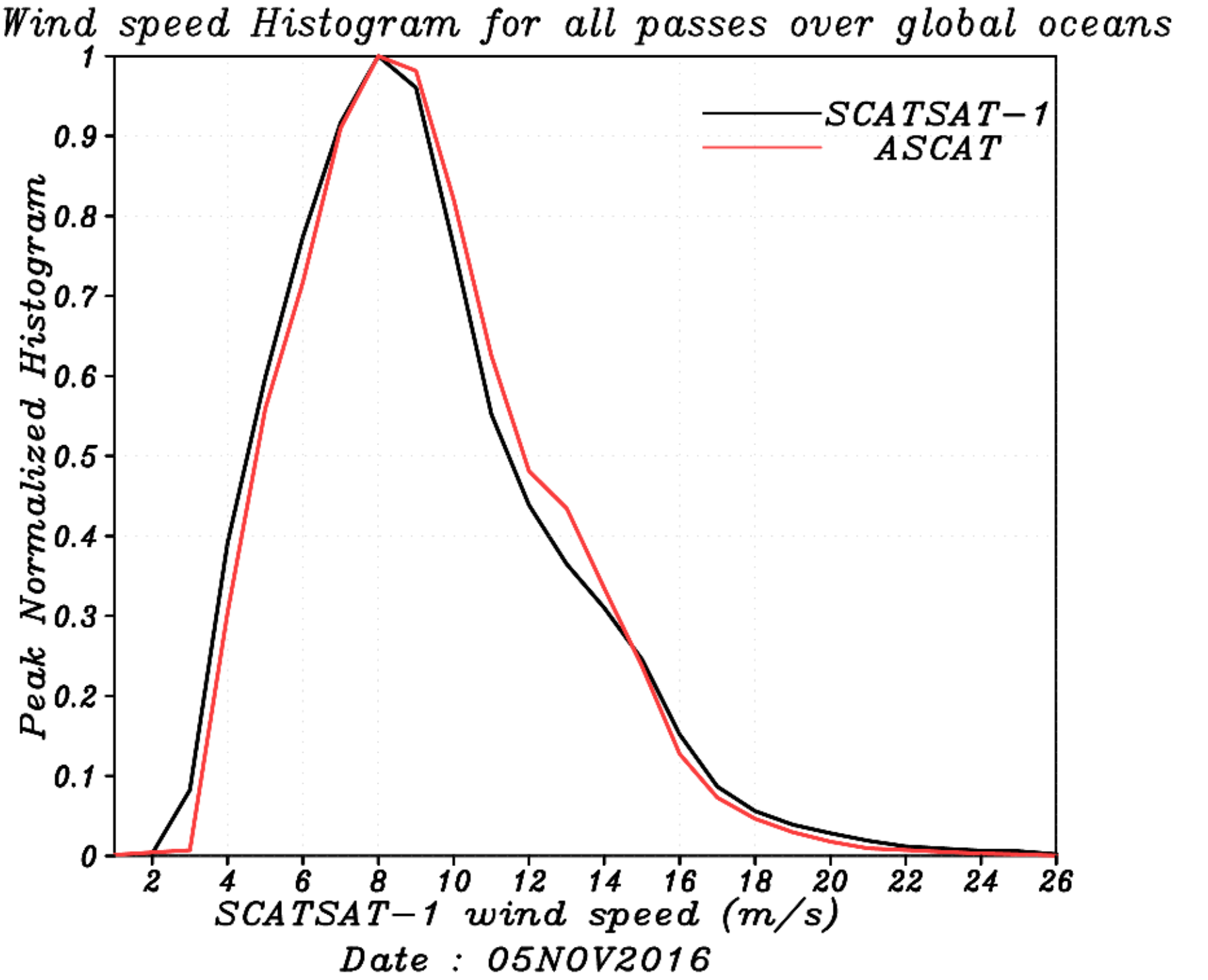

Comparison of SCATSAT-1 and ASCAT for Descending passes over global oceans
N=85858
BIAS=-0.07m/s
RMS=1.14m/s
STD=1.14m/s
R²=0.94
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
N=85858
BIAS=-1.02°
RMS=20.42°
STD=20.39°
R²=0.84
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 05NOV2016


Comparison of SCATSAT-1 and ASCAT for Ascending passes over global oceans
N=73790
BIAS=-0.15m/s
RMS=1.08m/s
STD=1.07m/s
R²=0.95
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=73790
BIAS=1.51°
RMS=19.40°
STD=19.34°
R²=0.83
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 : 05NOV2016


Comparison of SCATSAT-1 and ASCAT for all passes over Northern Hemisphere
N=41561
BIAS=0.12m/s
RMS=1.24m/s
STD=1.23m/s
R²=0.96
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=41561
BIAS=-1.07°
RMS=22.63°
STD=22.60°
R²=0.75
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 : 05NOV2016


Comparison of SCATSAT-1 and ASCAT for all passes over Tropics
N=60913
BIAS=0.04m/s
RMS=0.98m/s
STD=0.97m/s
R²=0.92
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=60913
BIAS=0.80°
RMS=21.30°
STD=21.29°
R²=0.77
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 : 05NOV2016

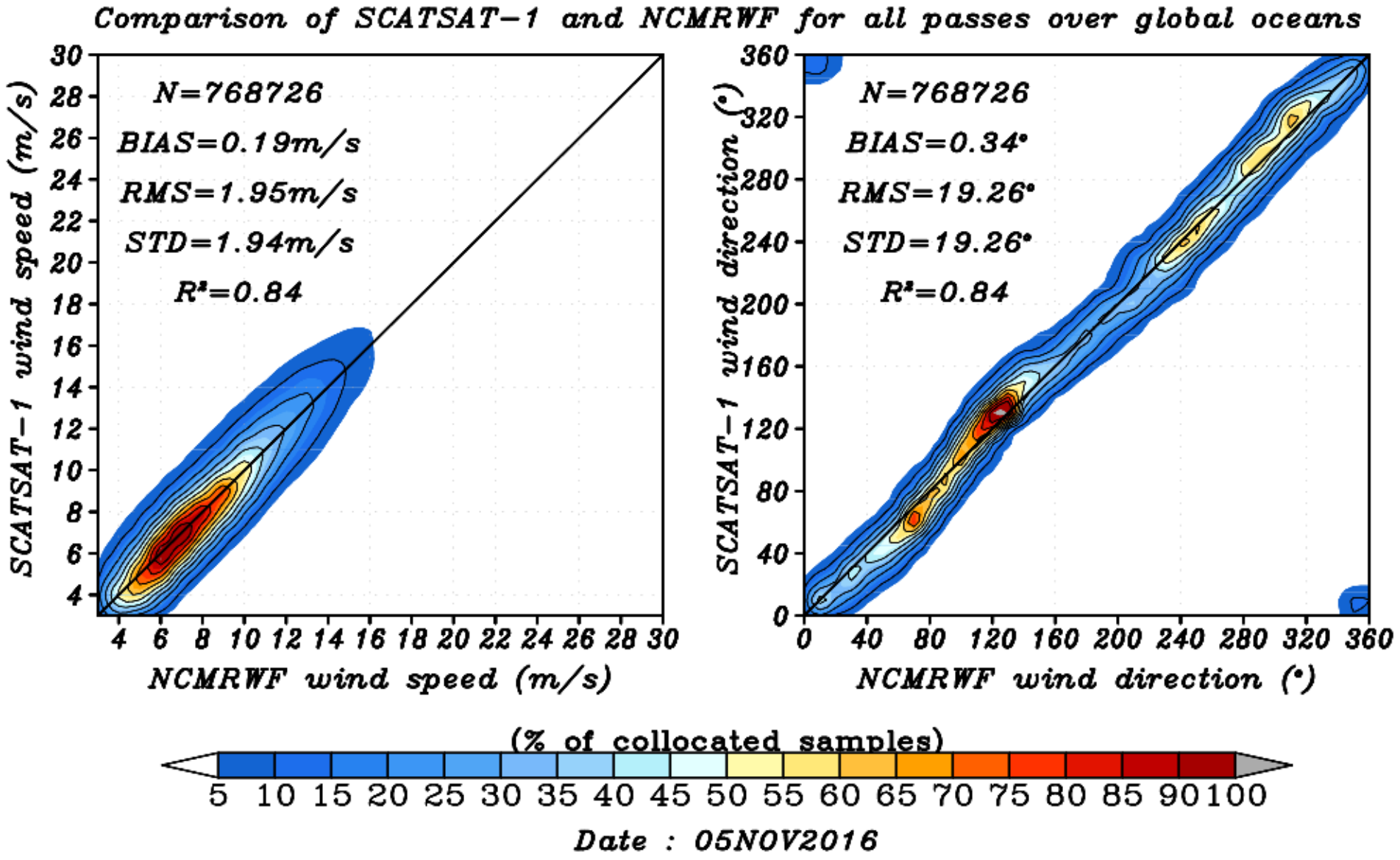

Comparison of SCATSAT-1 and ASCAT for all passes over Southern Hemisphere
N=57547
BIAS=-0.44m/s
RMS=1.16m/s
STD=1.08m/s
R²=0.95
SCATSAT-1 wind speed (m/s)
ASCAT wind speed (m/s)
N=57547
BIAS=0.36°
RMS=16.10°
STD=16.09°
R²=0.83
SCATSAT-1 wind direction (°)
ASCAT wind direction (°)
(% of collocated samples)
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 100
Date : 05NOV2016

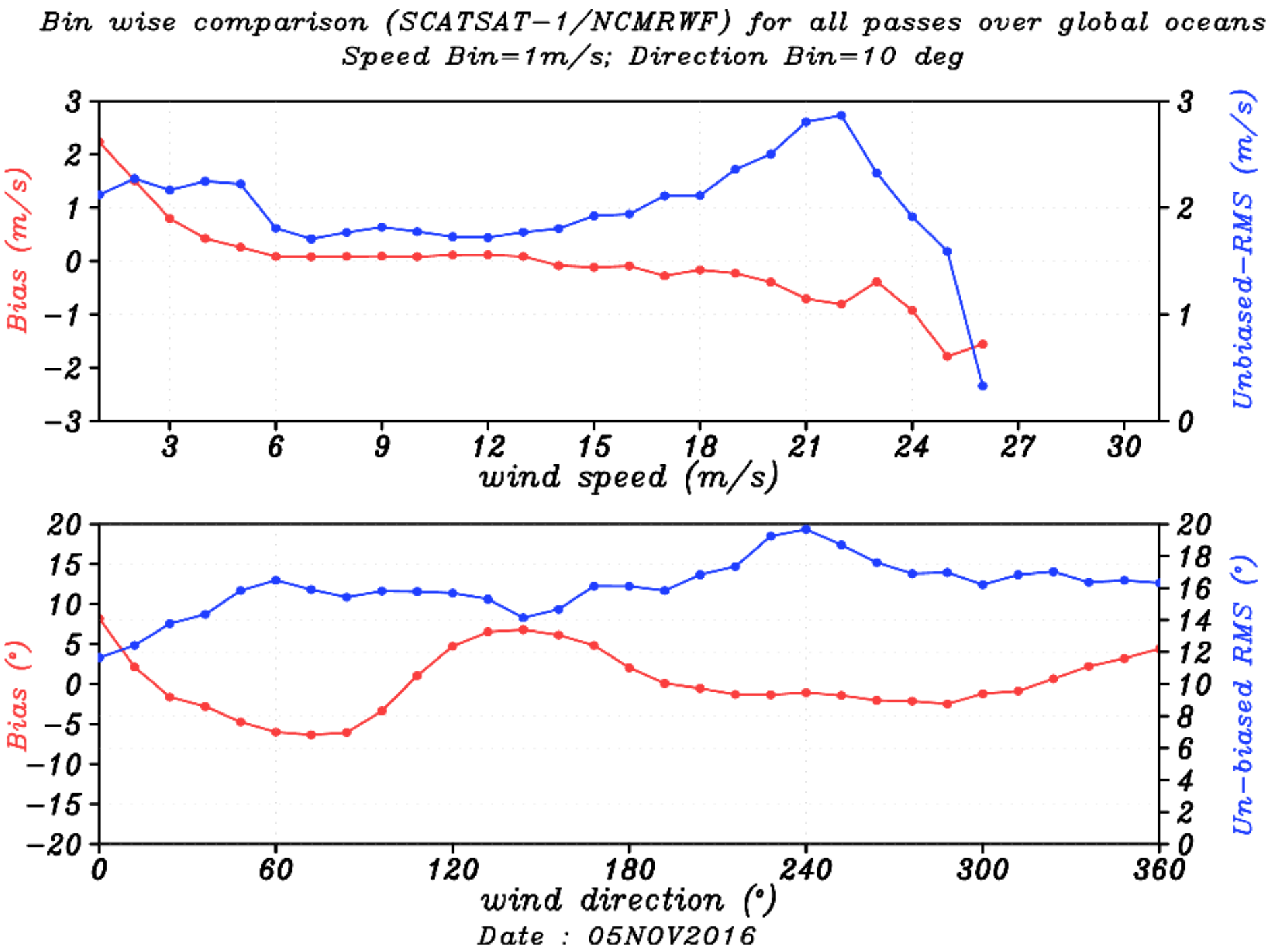

Wind speed Histogram for all passes over global oceans
SCATSAT-1
ASCAT
Peak Normalized Histogram
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
2
4
6
8
10
12
14
16
18
20
22
24
26
SCATSAT-1 wind speed (m/s)
Date : 05NOV2016

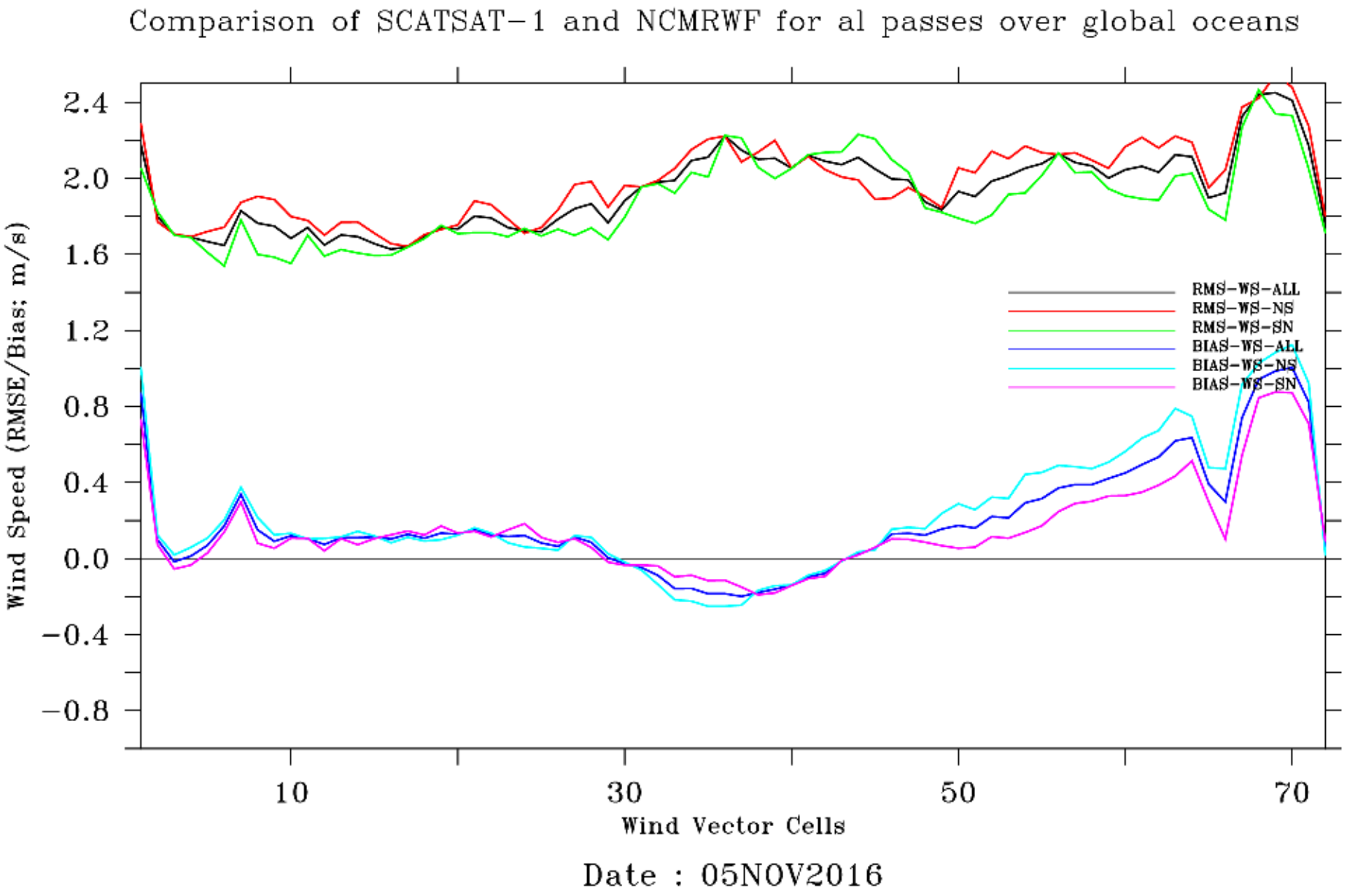
COMPARISON WITH NWP(NCMRWF)

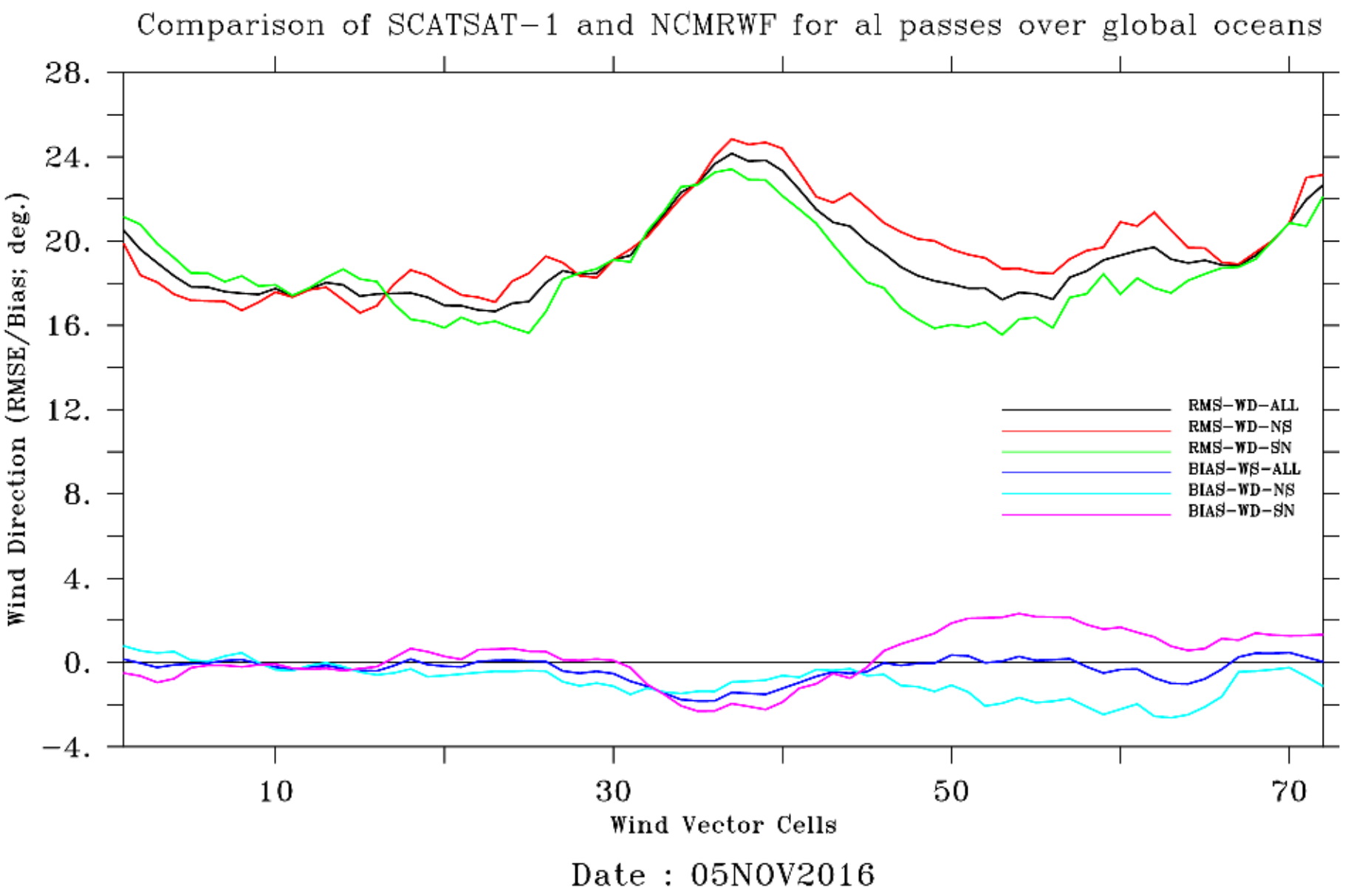
Date : 05NOV2016

Collocation: delR=0.25°; delT=+/−3 hr


Comparison of SCATSAT-1 and NCMRWF for all passes over global oceans
N=768726
BIAS=0.19m/s
RMS=1.95m/s
STD=1.94m/s
R²=0.84
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=768726
BIAS=0.34°
RMS=19.26°
STD=19.26°
R²=0.84
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 : 05NOV2016


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 : 05NOV2016


Comparison of SCATSAT-1 and NCMRWF for al 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 : 05NOV2016


Comparison of SCATSAT-1 and NCMRWF for al passes over global oceans
28.
24.
20.
16.
12.
8.
4.
0.
-4.
Wind Direction (RMSE/Bias; deg.)
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 : 05NOV2016