Status of TODWL and GWOLF Activities and Plans for future Airborne DWL

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GWOLF (Groundbased Wind Observing Lidar Facility)

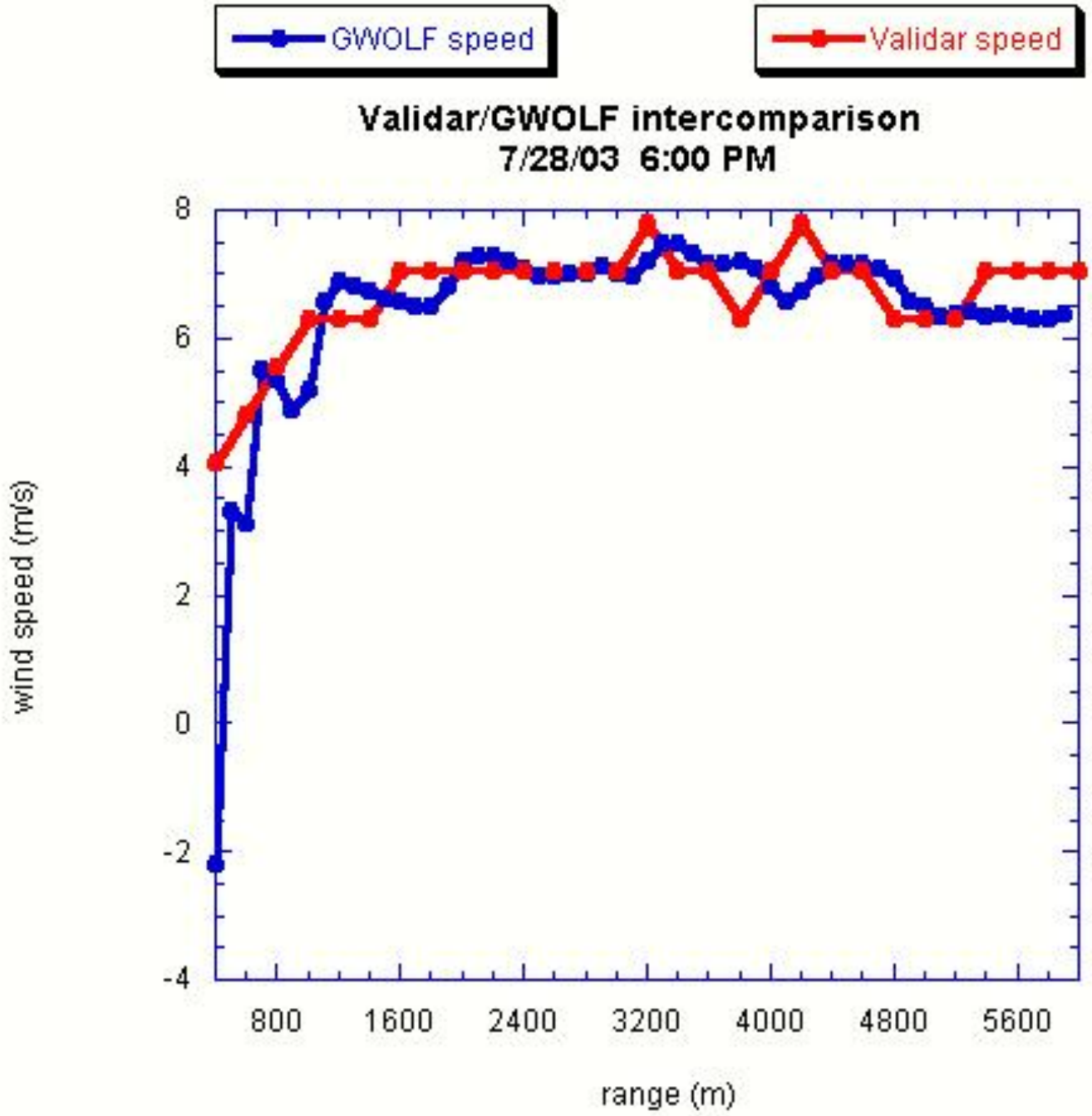
- Funded by IPO as part of NPOESS development of cal/val program for space based wind observing systems such as QuikScat, WindSat, CMV, WVMV and future DWLs
- Currently the TODWL system mounted in a trailer; plan to replace TODWL scanner with a roof mounted hemispherical scanner. Scanner tested; being repaired

VALIDAR & GWOLF at the Lidar Intercomparison Facility

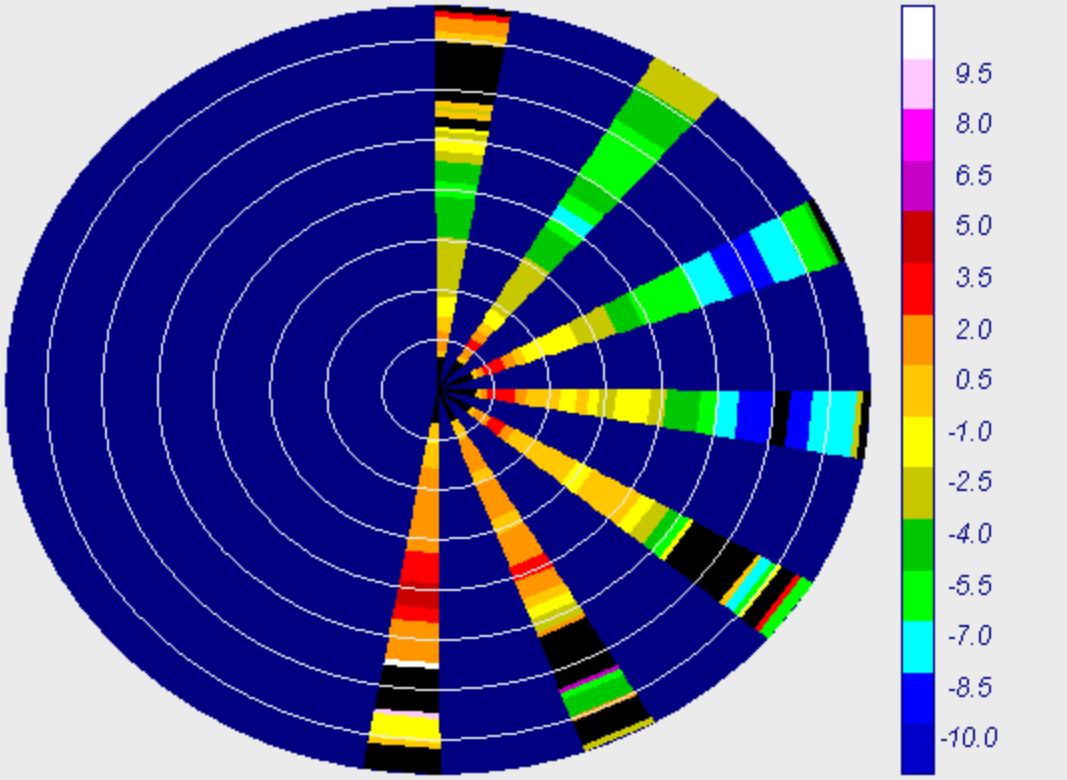
Location
Of
Target
Lights
Bldg 1297
R-B-Y-G

Validar/GWOLF Comparisons

- Performed at LaRC's LIF
- Horizontal and vertical stares
- 200m resolution for Validar
- 1 minute averaging


GWOLF speed
Validar speed
Validar/GWOLF intercomparison
7/28/03 6:00 PM
wind speed (m/s)
8
6
4
2
0
-2
-4
800
1600
2400
3200
4000
4800
5600
range (m)

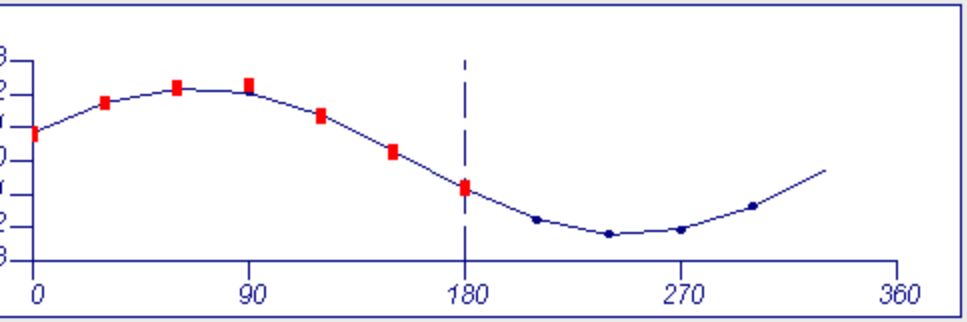
lotdata_vad - [Graphic1]
c:\ald\DWL Data LabS\DATA GWOLF\10 09 03\output\ 0937v0
4.6
4.0
3.5
2.9
2.4
1.8
1.3
0.8
0.2
-0.3
-0.9
-1.4
-2.0
-2.5
RESET VAD
TOGGLE VAD
RESET COLOR
3750
3550
3350
3150
2950
2750
2550
2350
2150
1950
1750
1550
1350
1150
950
750
550
350
150
-50
77
72
67
62
57
52
47
42
37
32
27
22
17
12
7
2
-15 -13 -11 -9 -7 -5 -3 -1 1 3 5 7 9 11 13 15
0
90
180
270
360
OF: 0.03
OFFSET: 0.12
TOGGLE PROFILE
PREV GATE
GATE 20
NEXT GATE
RESET PROFILE



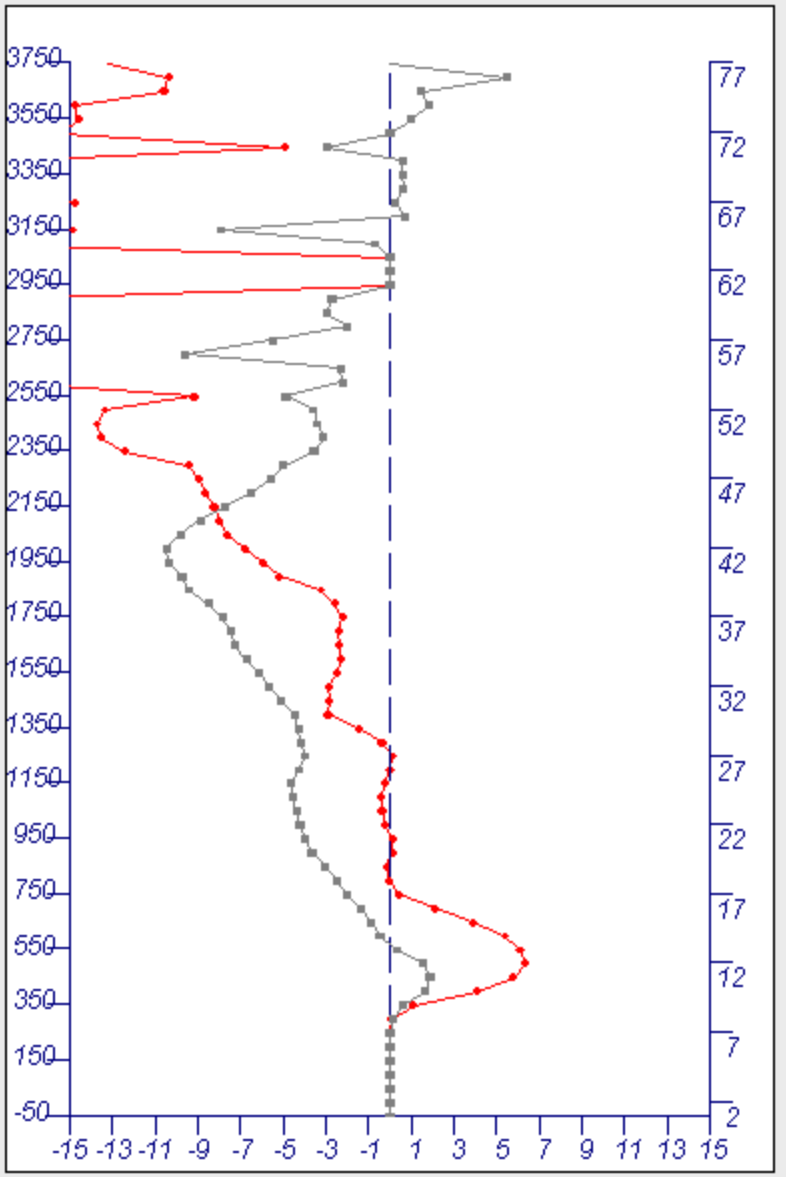
RESET VAD

TOGGLE VAD

RESET COLOR



c:\ald\DWL_Data_LabS\DATA_GWOLF\12_04_03\output_1642v0



OF: 0.02

OFFSET: -0.01

TOGGLE PROFILE

PREV GATE

GATE 10

NEXT GATE

RESET PROFILE

PREV VAD

VAD 1

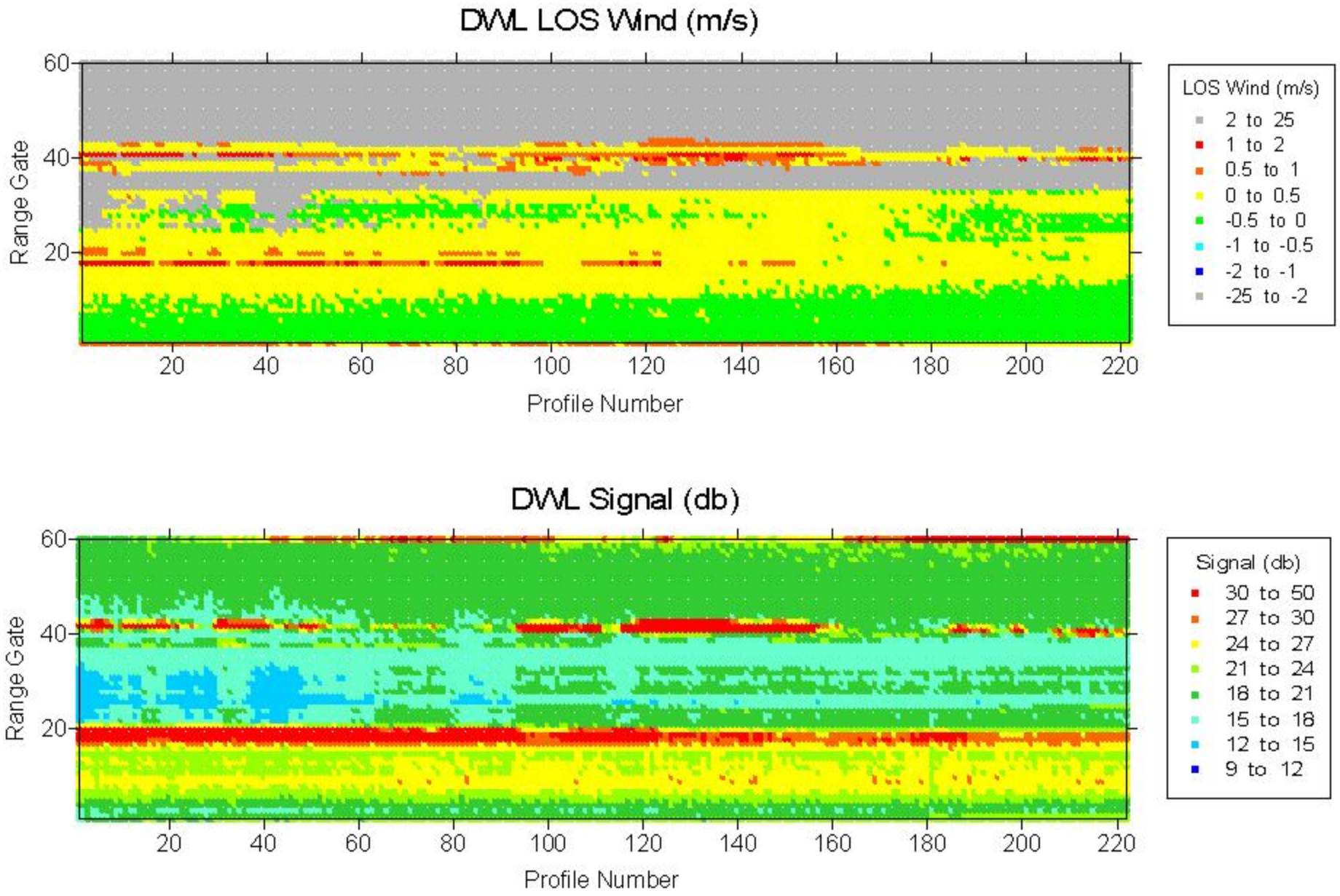
NEXT VAD

QUIT

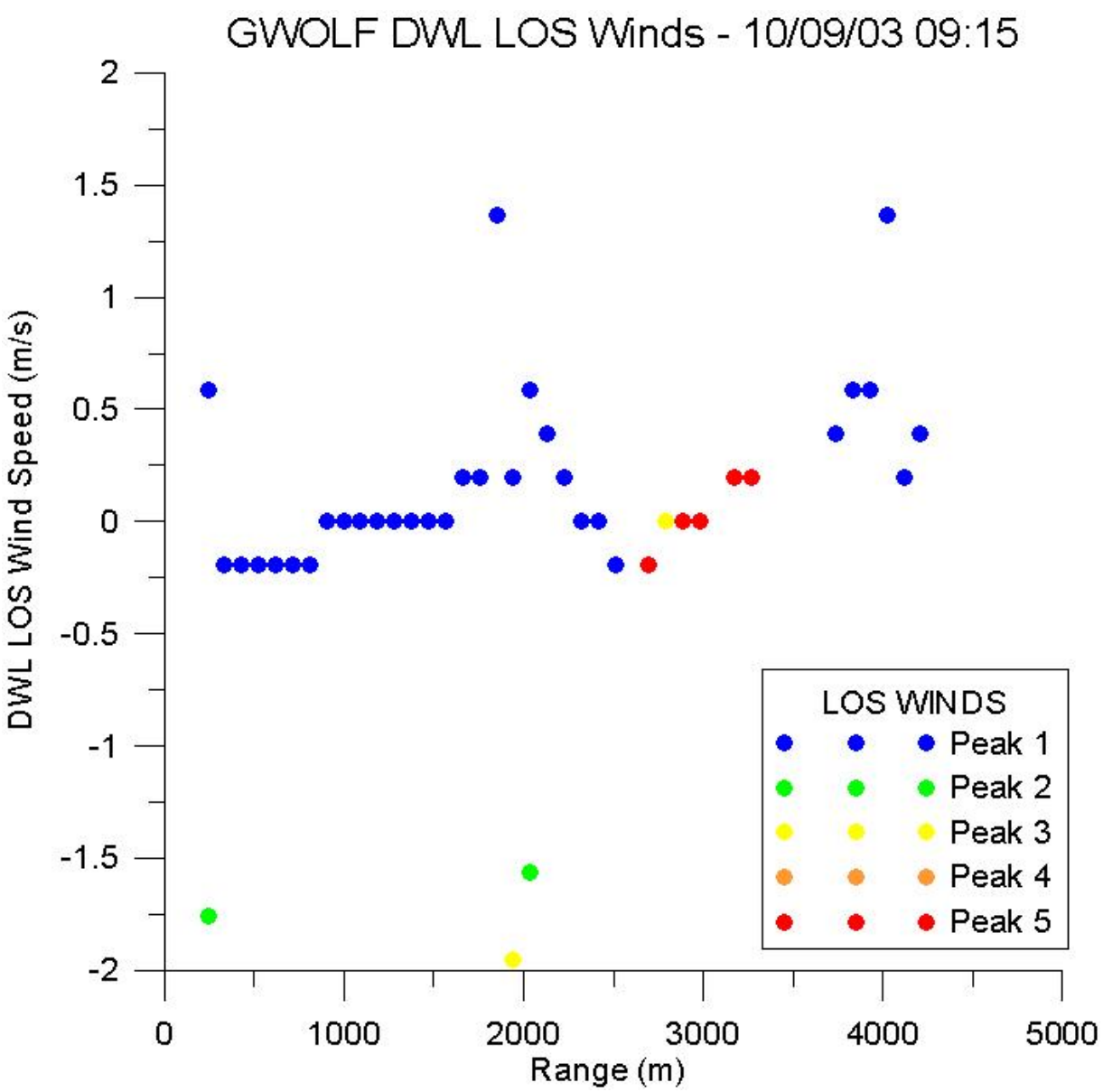
Cloud returns

- Performed at LaRC's LIF
- Objective is to understand how to process and interpret GWOLF returns from cloud boundaries (large ~ 15 -20 dB backscatter gradients)

GWOLF: Vertical DWL Profiles for 10/09/03 0915

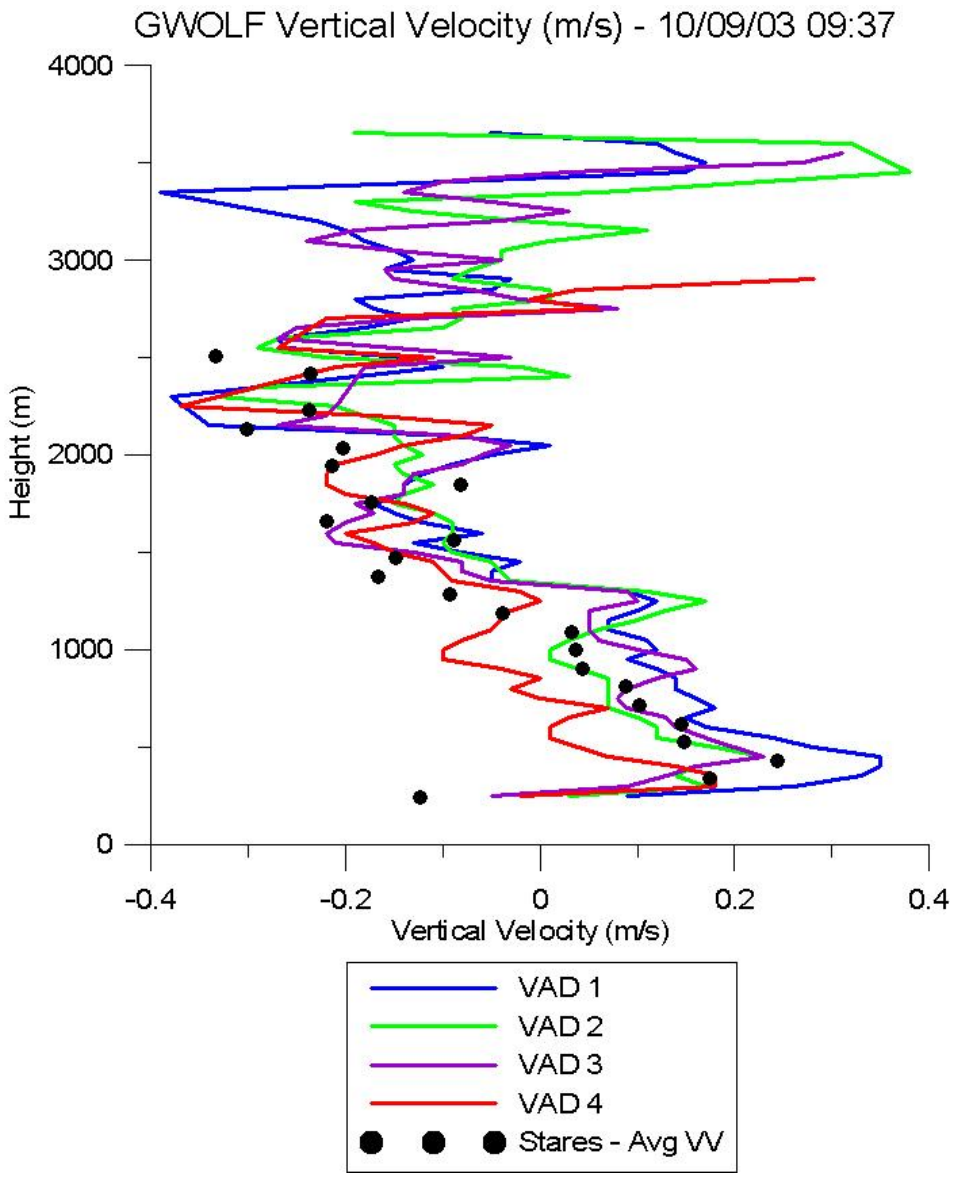


SWA Graphics 2003


GWOLF DWL LOS Winds - 10/09/03 09:15
DWL LOS Wind Speed (m/s)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
0
1000
2000
3000
4000
5000
Range (m)
LOS WINDS
Peak 1
Peak 2
Peak 3
Peak 4
Peak 5

Vertical velocity from VADs

- Performed at LaRC's LIF
- Question is " How accurate and reliable is the estimate of the vertical velocity using the offset in the sine fit of a partial VAD"
- Interweave a 25 second vertical stare into a 7 point partial VAD.


GWOLF Vertical Velocity (m/s) - 10/09/03 09:37
4000
3000
2000
1000
0
Height (m)
-0.4
-0.2
0
0.2
0.4
Vertical Velocity (m/s)
VAD 1
VAD 2
VAD 3
VAD 4
Stares - Avg VV