**02/16/2010**

**Doppler Lidar Simulation Model (DLSM) Line of Sight Model Outputs**

**(For Assimulation)**

1. Output Products

* Ascii header containing inputs of simulation (ends at ~~)
* Weighted Average Time of DWL shots to make DWL LOS estimate (s)
* Weighted Average Platform (satellite) heading (deg)

Ex. Heading from equator to true north: 90.0

Heading from equator to true south: -90.0

<http://www.swa.com/ald/DLSM4.2/images/satelliteTrack.jpg>

* Weighted Average Elevation Angle of DWL shots to make DWL LOS estimate (Rad)

Ex. Theta

<http://www.swa.com/ald/DLSM4.2/images/nadirscangeometry.jpg>

* Weighted Average Azimuth Scan Angle of DWL shots to make DWL LOS estimate (deg)

<http://www.swa.com/ald/DLSM4.2/images/conicconvention.jpg>

* Weighted Average Shot Latitude of DWL shots to make DWL LOS estimate (deg)
* Weighted Average Shot Longitude of DWL shots to make DWL LOS estimate (deg)
* Weighted Average Shot Height Assignment (with clouds) of DWL shots to make DWL LOS estimate (m)
* Weighted Average Shot Height Assignment (without clouds) of DWL shots to make DWL LOS estimate (m)
* Altitude Thickness Layer for DWL LOS estimate (m)
* Weighted Average Time of DWL shots to make DWL LOS estimate (s)
* Number Of Estimates of DWL shots to make DWL LOS estimate (-)
* DWL LOS estimate (m/s)

<http://www.swa.com/ald/DLSM4.2/LSMlos.htm>

* Along the LOS uncertainty of DWL LOS estimate (m/s)

<http://www.swa.com/ald/DLSM4.2/LSMdwl.htm>

* Source medium of DWL LOS estimate

1 – Molecular/Aerosol

2 – Opaque Cloud

3 – Cirrus Cloud

* Average PBL height (KM)

B. FORTRAN write statement

           write(14,'(9(1x,f10.4),1x,i10,2(1x,f10.4),1x,i10)',iostat=ios) &

               wtAvgTimeOfShot,              &

               wtAvgPlatformHeading,         &

               wtAvgElevationAngle,          &

               wtAvgAzimuthScanAngle,       &

               wtAvgShotLatitude,            &

                 wtAvgShotLongitude,           &

               wtAvgShotHeightAssignment,    &

               wtAvgShotHeightAssignment,    &

               layerThickness,               &

               numberOfEstimates,            &

               laserLOSvelocity,              &

               alongLOSunc,                  &

               sourceMedium                   &

AvgPBL

1. SWA Notes

* The DWL LOS wind has not been projected into the horizontal. The Elevation angle is needed for transformation.
* Satellite Heading and DWL Azimuth angle should be used to compute geometry needed for assimulation heading.
* For assimulation of the hybrid concept DWL winds, the user must combine coherent and direct detection DLSM output data to construct Hybrid wind profiles.

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