Dr. Steven
Fiorino
Air Force Institute of Technology, Center for Directed Energy
Jaclyn Schmidt 1,2 , and Blaine Fourman 1,2
1 Department of Engineering Physics, Air Force Institute of Technology, 2950 Hobson Way,

Wright-Patterson AFB, OH 45433-7765

2 Applied Research Solutions, 51 Plum St, Ste 240, Beavercreek, OH 45440
Oral
The presence of clouds is a critically important parameter for Department of Defense applications, especially for the directed energy (DE) community. Therefore, understanding the
probability that a cloud will inhibit the performance of existing and emerging DE technologies
(e.g. high energy lasers, power beaming, free space optical communications) for operational
regions of interest is necessary. Existing cloud climatologies are available for limited land sites
but do not account for elevation and azimuthal variations. The Air Force Institute of Technology's Center for Directed Energy (AFIT/CDE) has developed a robust simulation
technique leveraging 10+ years' worth of numerical weather prediction (NWP) data. Utilizing
realistic sky characterizations from AFIT/CDE's 4D Weather Cube tool, NWP-inferred cloud
layers are defined and cloud free line of sight (CFLOS) probabilities quantified over a 10+ year
period for any worldwide location, including littoral and over-ocean sites. Recent high
performance computing optimizations allow for efficient runtimes and yield cloud climatologies
for various worldwide locations, times of day, and view angles considering azimuthal variations.

Meeting homepage

DoD Cloud Post-Processing and Verification Workshop

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