

BigFoot

**Characterizing Land Cover, LAI,
and NPP at the Landscape Scale
for EOS/MODIS Validation**



**Field Manual
Version 2.1**

Environmental Sciences Division

BIGFOOT FIELD MANUAL

VERSION 2.1

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PREFACE

The Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) for Biogeochemical Dynamics is operated as part of the National Aeronautics and Space Administration's (NASA's) Earth Science Enterprise. The ORNL DAAC (<http://www-eosdis.ornl.gov/>) maintains data related to biogeochemical dynamics. As part of its role, the DAAC supports the NASA Earth Observing System (EOS) Validation Program by archiving and distributing field-measurement and remote-sensing data associated with validation. The goal of the EOS Validation Program is to make a comprehensive assessment of all EOS science data products.

The BigFoot Project is funded by the Earth Science Enterprise to collect and organize data to be used in the EOS Validation Program. The data collected by the BigFoot Project are unique in being ground-based observations coincident with satellite overpasses. In addition to collecting data, the BigFoot project will develop and test new algorithms for scaling point measurements to the same spatial scales as the EOS satellite products. This *BigFoot Field Manual* will be used to achieve completeness and consistency of data collected at four initial BigFoot sites and at future sites that may collect similar validation data. Therefore, validation datasets submitted to the ORNL DAAC that have been compiled in a manner consistent with the field manual will be especially valuable in the validation program.

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ABBREVIATIONS

AGRO	agricultural cropland
ASPN	aspen
BLSP	black spruce
BOREAS	Boreal Ecosystem-Atmosphere Study
BORIS	BOREAS Information System
CORN	corn
DAAC	Distributed Active Archive Center
DBH	diameter at breast height (4.5 ft above ground)
EHWD	eastern hardwood
EOS	Earth Observing System
ET	evapotranspiration
FALO	fallow
f_{APAR}	fraction absorbed photosynthetic active radiation
GALF	gallery forest
GEWEX	Global Energy and Water Cycle Experiment
GPP	gross primary production
GPS	Global Positioning System
HARV	Harvard Forest
HEML	eastern hemlock
IGBP	International Geosphere-Biosphere Programme
JKPN	jack pine
KONZ	Konza Prairie
LAI	leaf area index
LANDSAT	land satellite
ILTER	Long-Term Ecological Research
MDNR	Manitoba Department of Natural Resources
MODIS	moderate resolution imaging spectrometer
MODLand	MODIS Land Discipline Group or MODIS Land Science Team
MP	mesh plot
MSKG	muskeg
MTCLM	Mountain Climate Simulator
NAD	North American Datum
NASA	National Aeronautics and Space Administration
NDVI	normalized difference vegetation index
NEE	net ecosystem exchange
NOAA	National Oceanic and Atmospheric Administration
NOBS	northern old black spruce
NPP	net primary production
NPP_A	aboveground NPP
NPP_B	belowground NPP
NSA	Northern Study Area
OLDF	oldfield meadow
ORNL	Oak Ridge National Laboratory

PAR	photosynthetically active radiation
RDPN	red pine
SGPR	shortgrass prairie
SHRB	shrub community
SOYB	soybean
SVI	spectral vegetation index
TGPR	tallgrass prairie
TM	Thematic Mapper
USDA	U.S. Department of Agriculture
UTM	Universal Transverse Mercator
VEMAP	Vegetation/Ecosystem Modeling and Analysis Project
WHC	water-holding capacity
WTLD	wetland