

FIRST ISLSCP FIELD EXPERIMENT



BOREAL ECOSYSTEM - ATMOSPHERE STUDY





How FIFE and BOREAS Saved the World

Follow the Water

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How FIFE and BOREAS Saved the World

Follow the Soil Water

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BOREAS

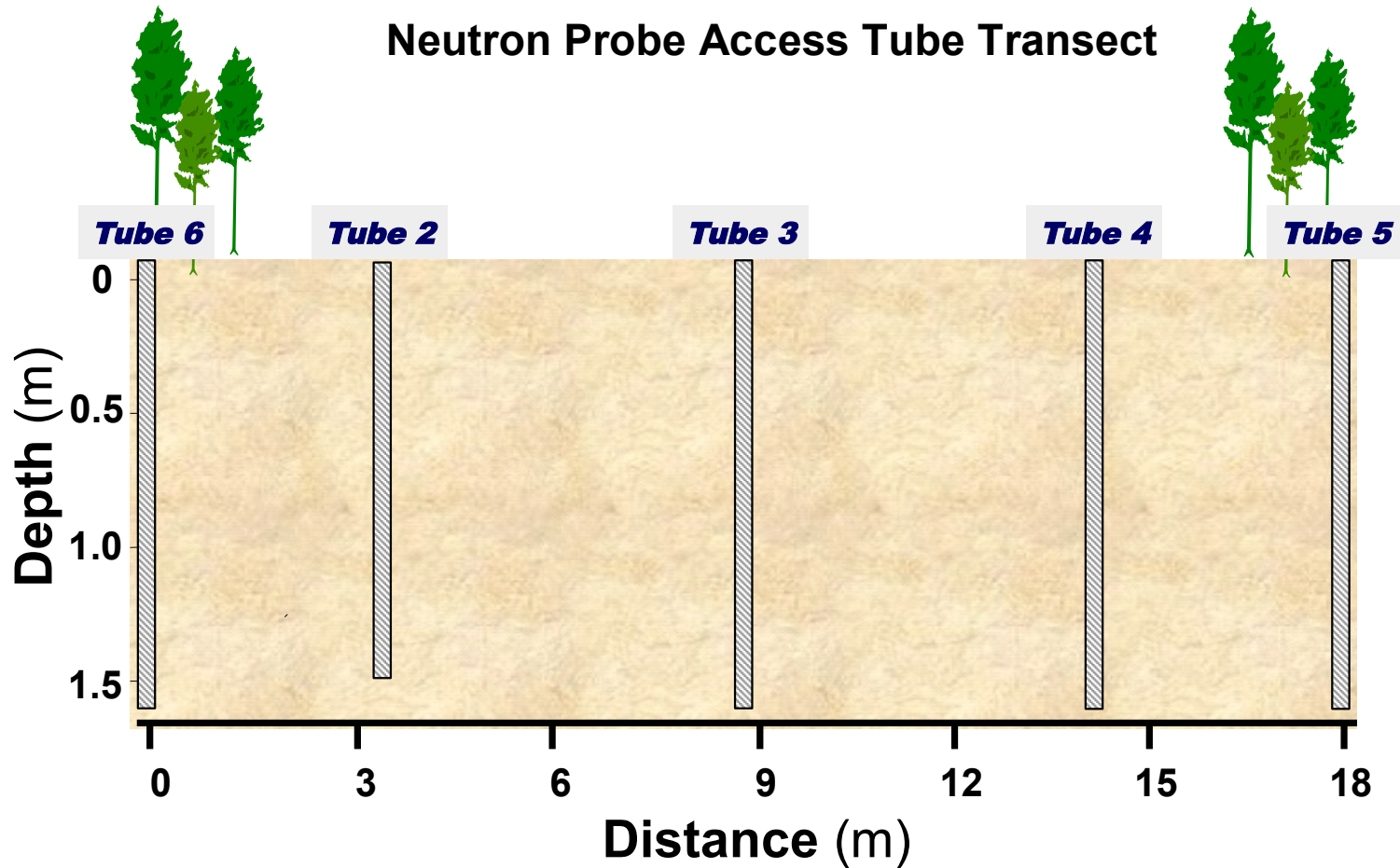
Experiment



BOREAS – Northern Study Area – Old Jack Pine

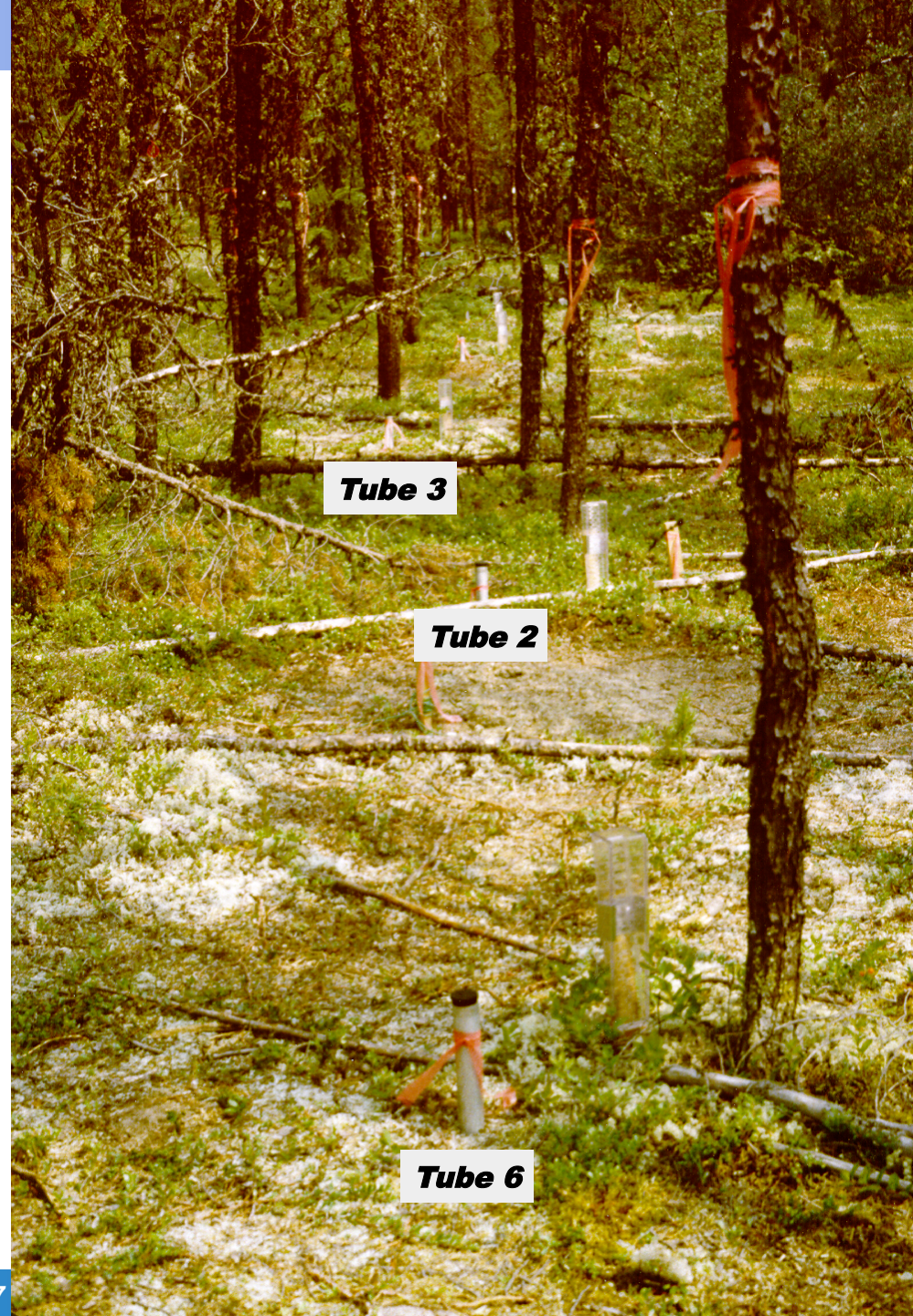
BOREAS - Northern Study Area - Old Jack Pine

Neutron Probe Access Tube Transect

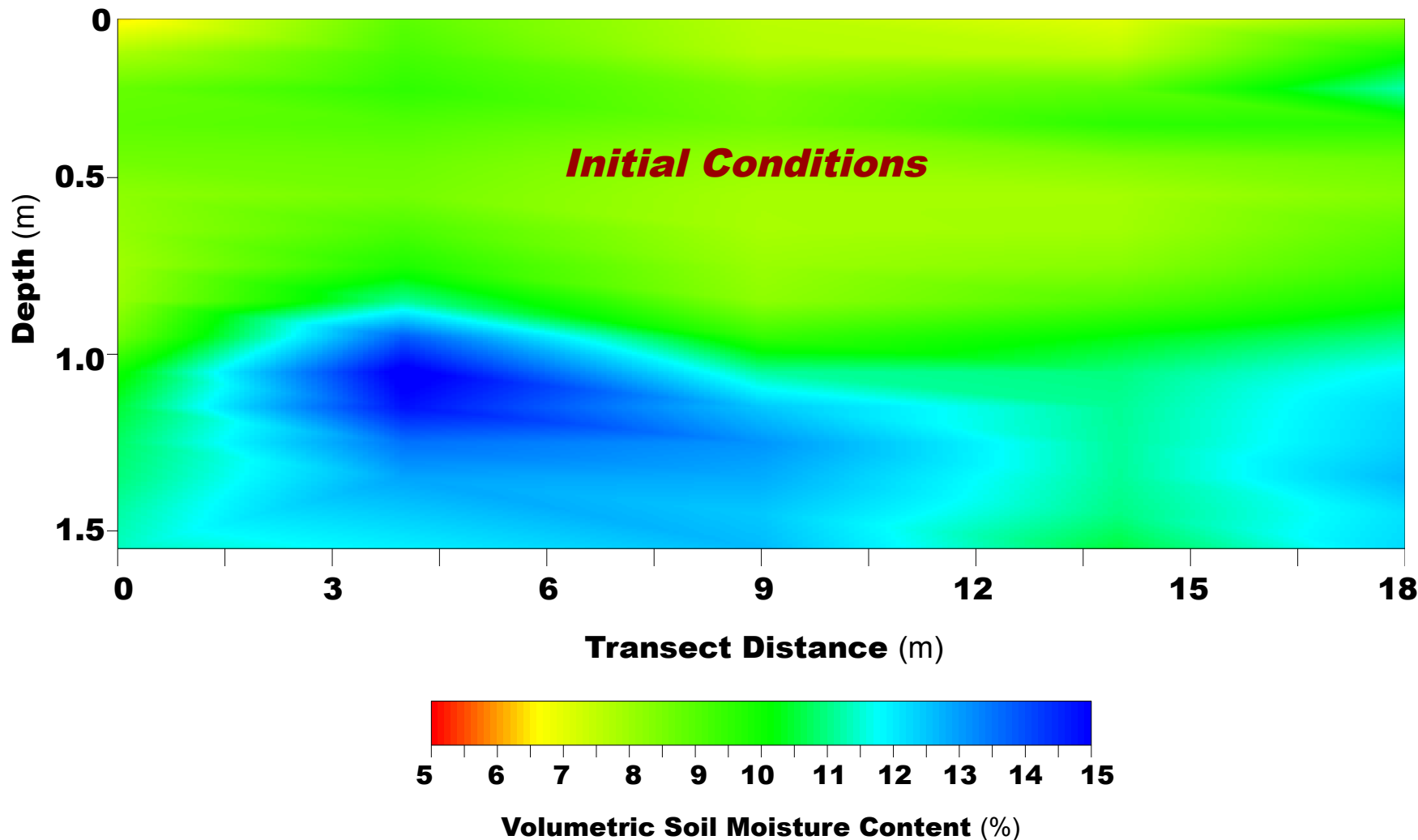


**BOREAS – Northern Study
Area – Old Jack Pine**

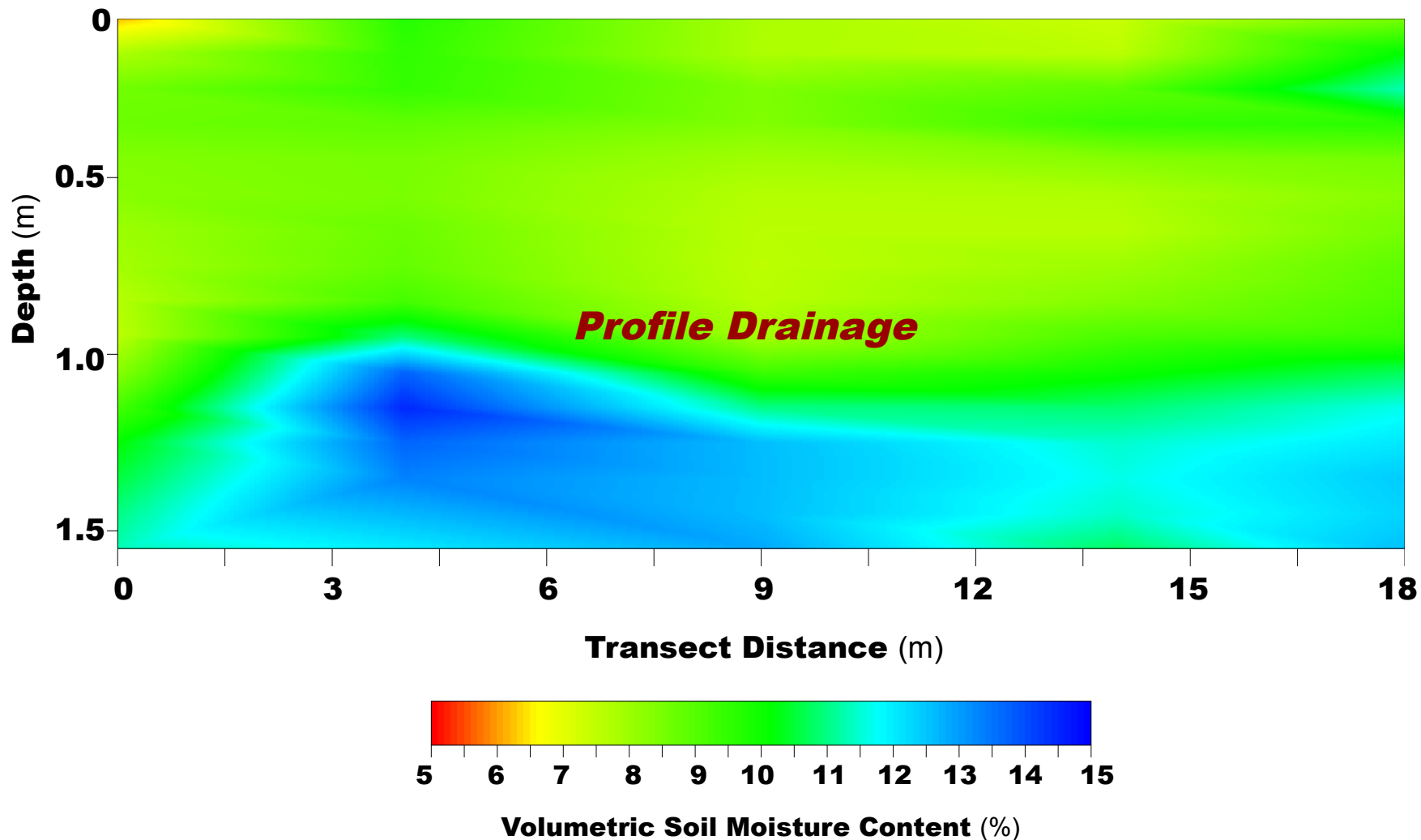
**Neutron Probe Access
Tube Transect**



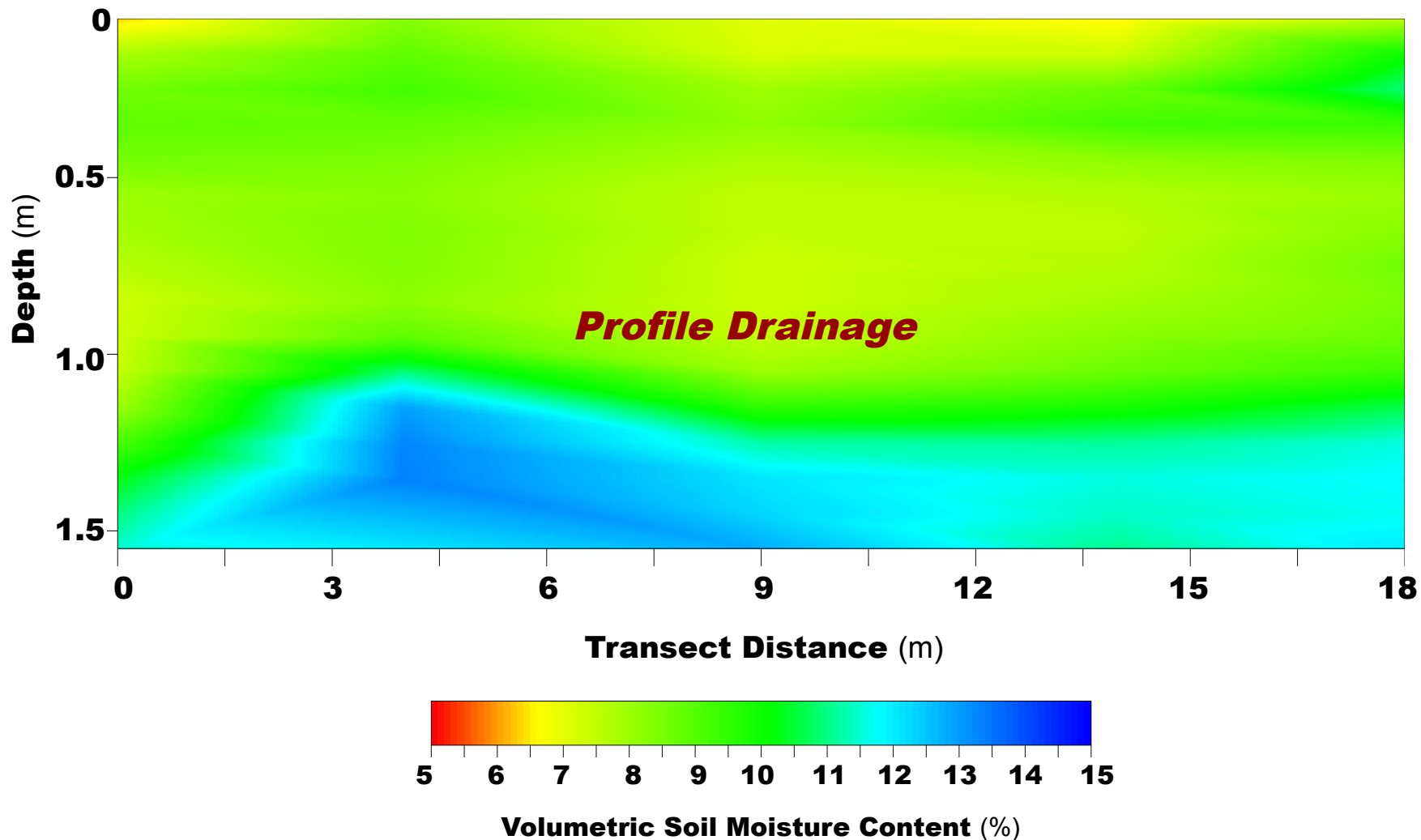
BOREAS Northern Study Area – Old Jack Pine DOY 150



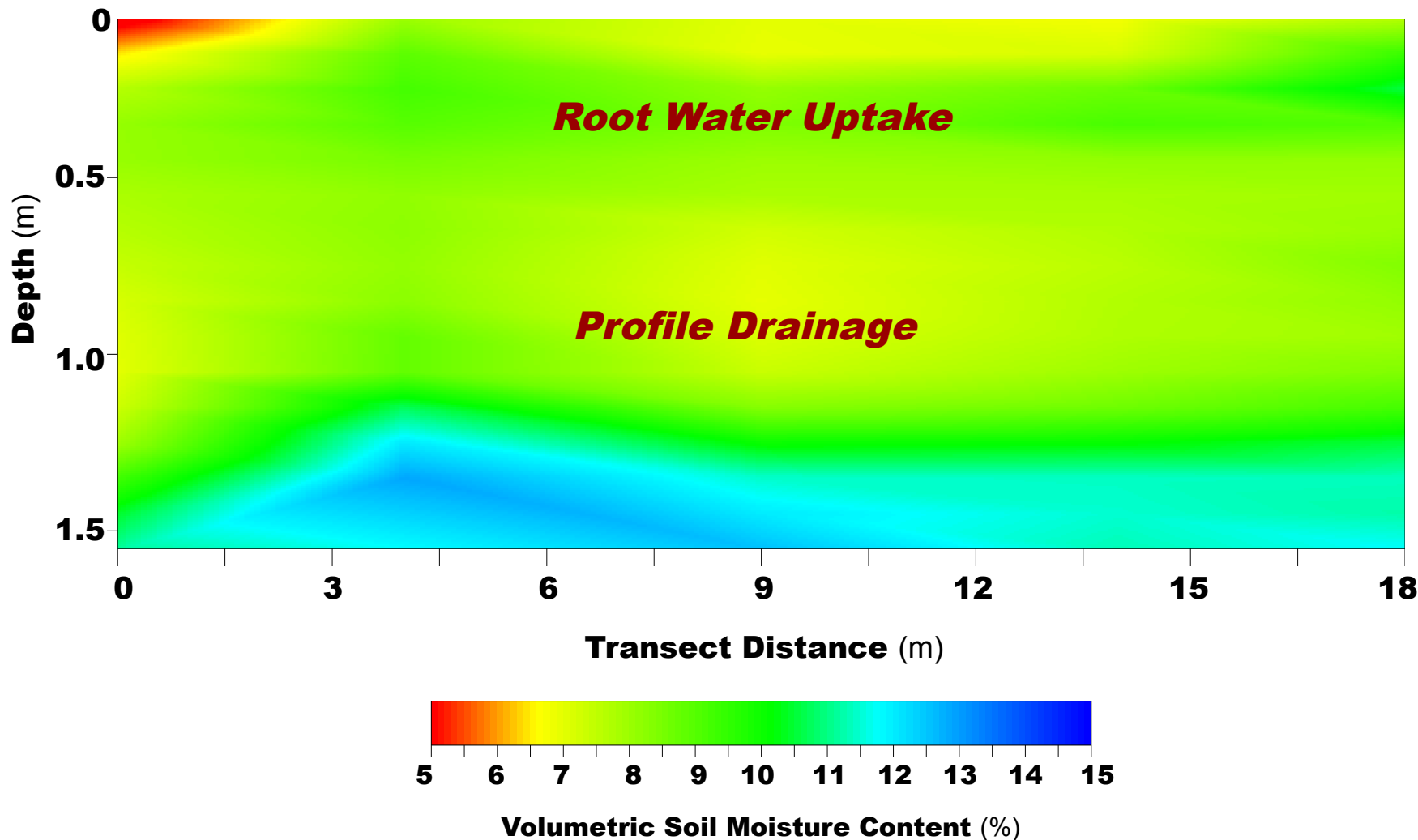
BOREAS Northern Study Area – Old Jack Pine DOY 152



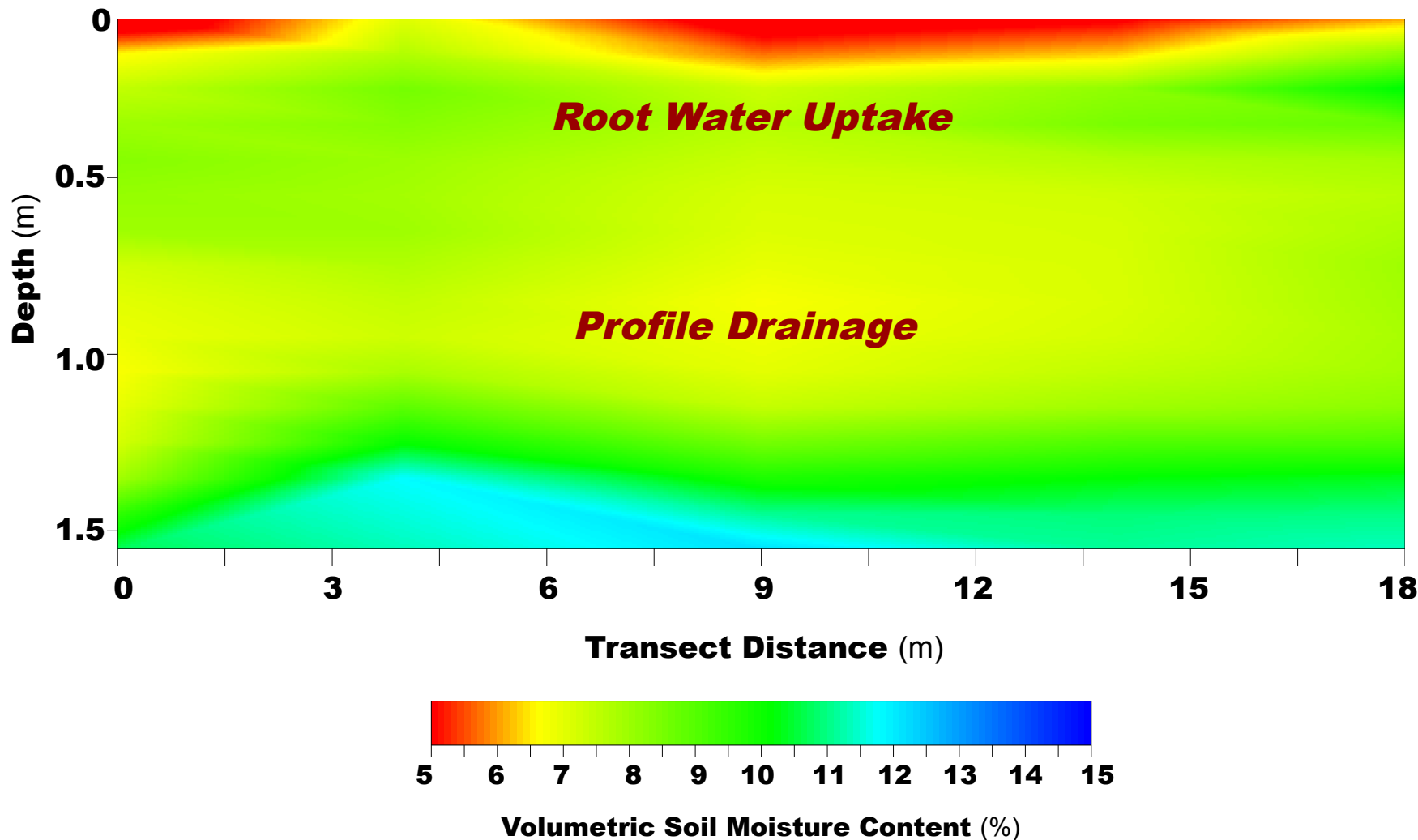
BOREAS Northern Study Area – Old Jack Pine DOY 154



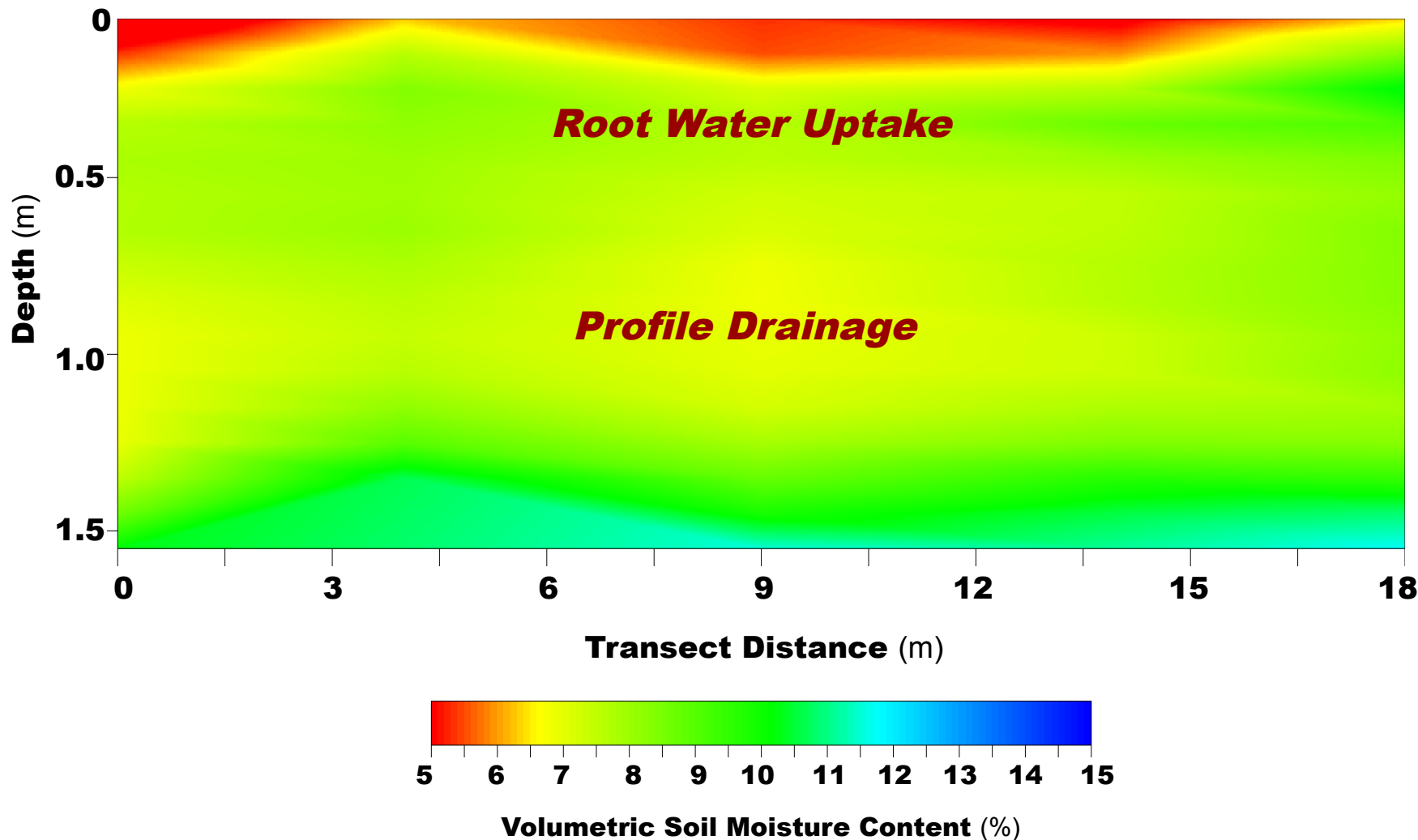
BOREAS Northern Study Area – Old Jack Pine DOY 156



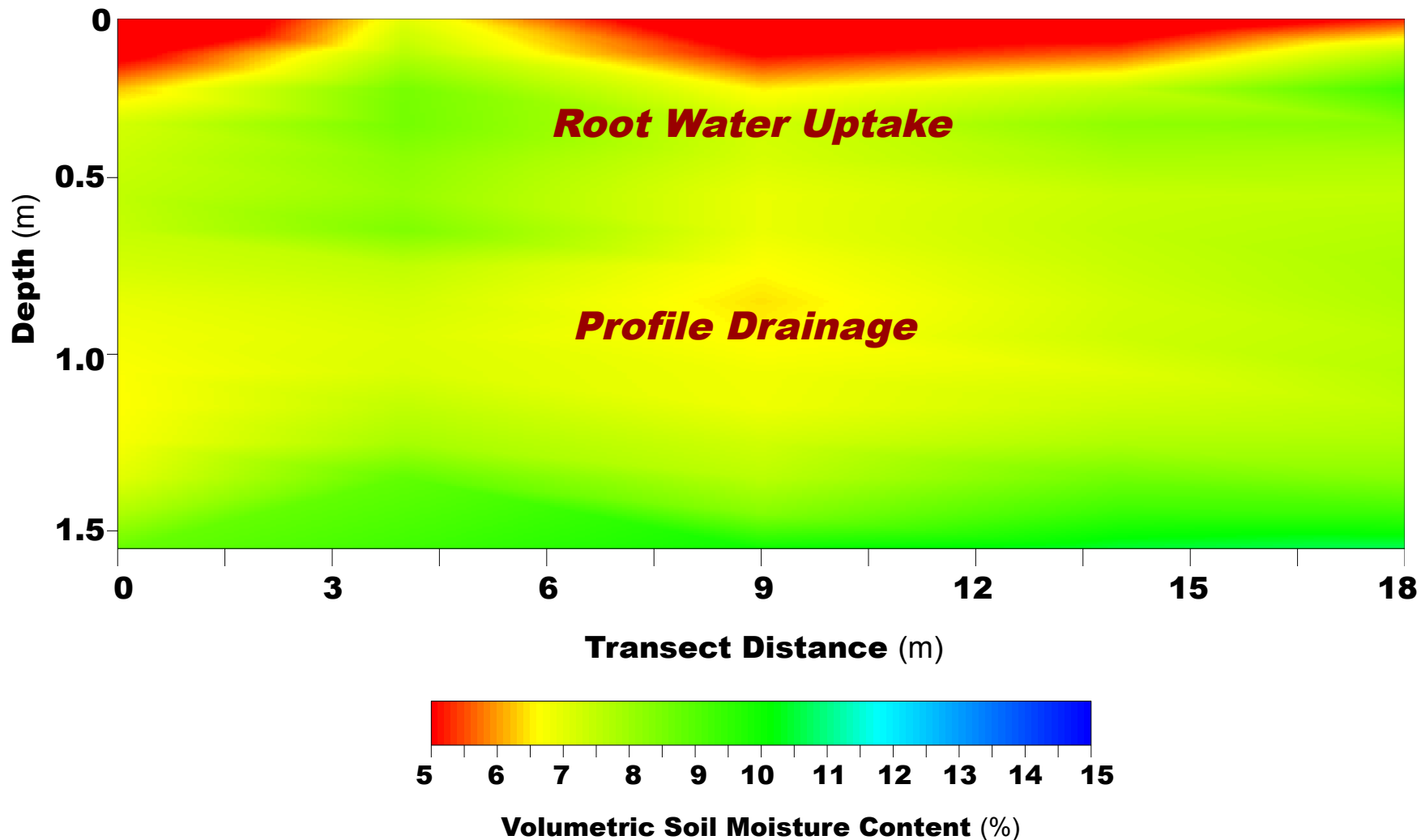
BOREAS Northern Study Area – Old Jack Pine DOY 158



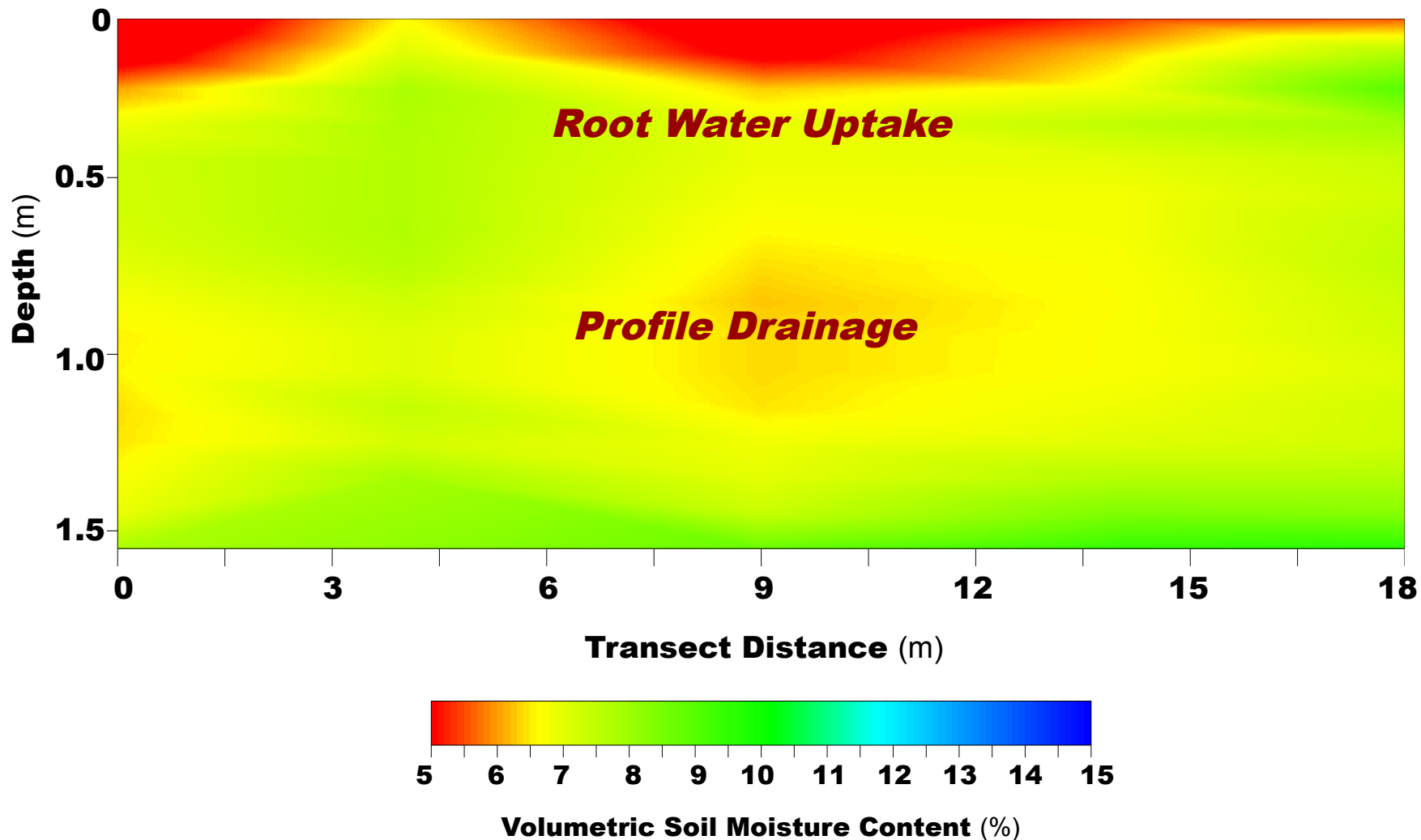
BOREAS Northern Study Area – Old Jack Pine DOY 160



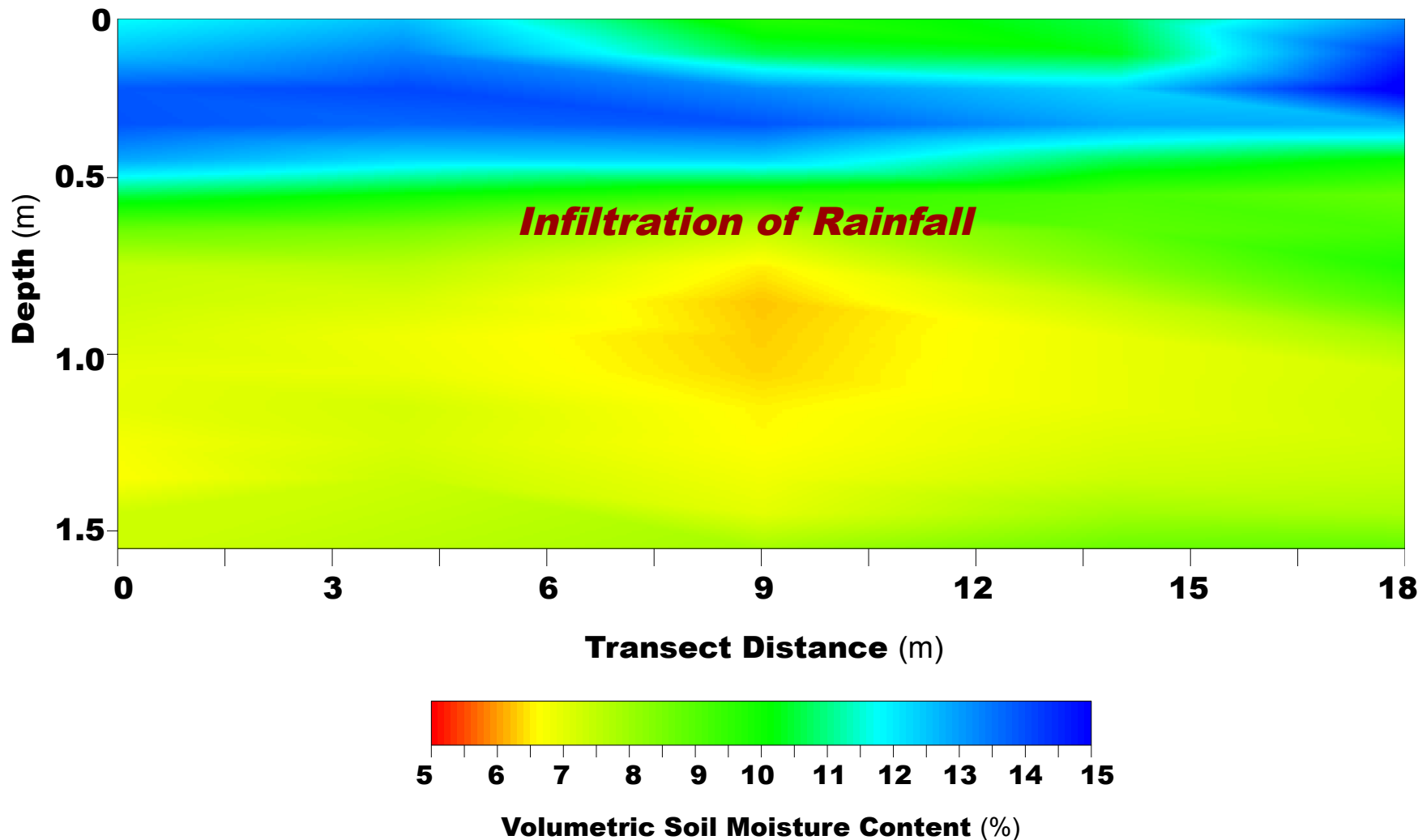
BOREAS Northern Study Area – Old Jack Pine DOY 162



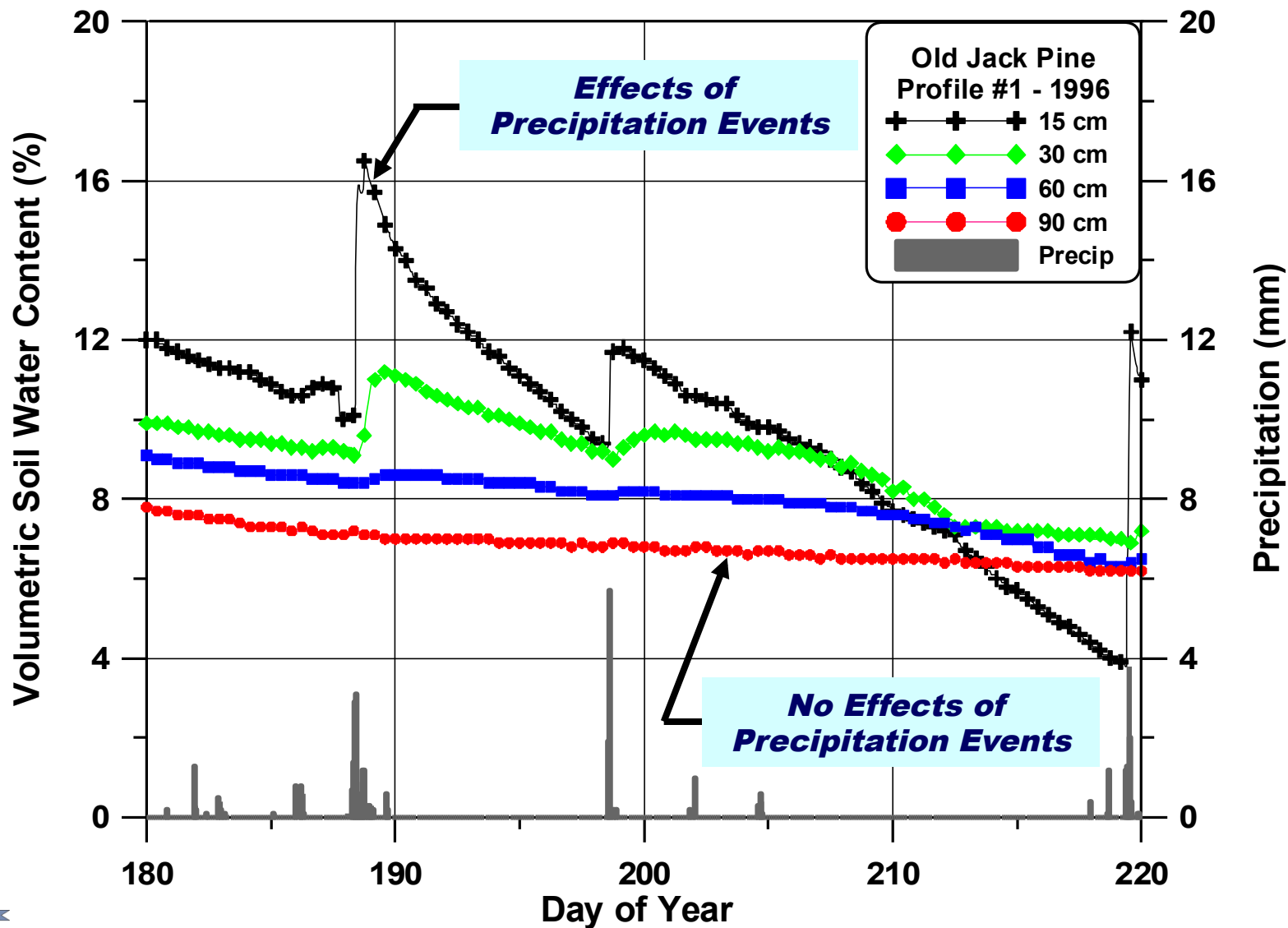
BOREAS Northern Study Area – Old Jack Pine DOY 164



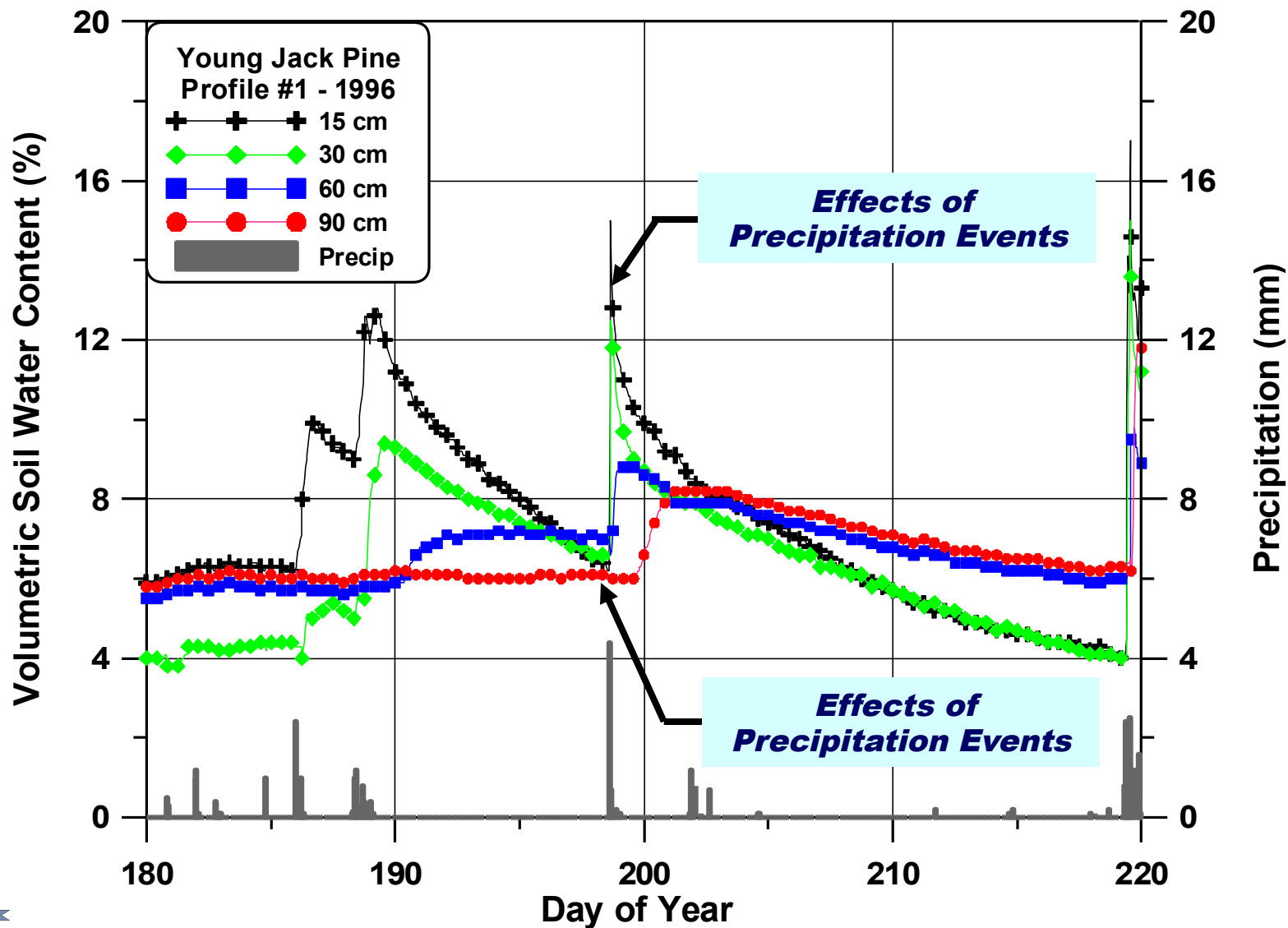
BOREAS Northern Study Area – Old Jack Pine DOY 166



NSA Old Jack Pine – Profile #1



NSA Young Jack Pine – Profile #1



Follow the Soil Water

Field Operations - Summer



Field Operations – Tension Infiltrometer



BOREAS – Infiltration Test – Sandy Site



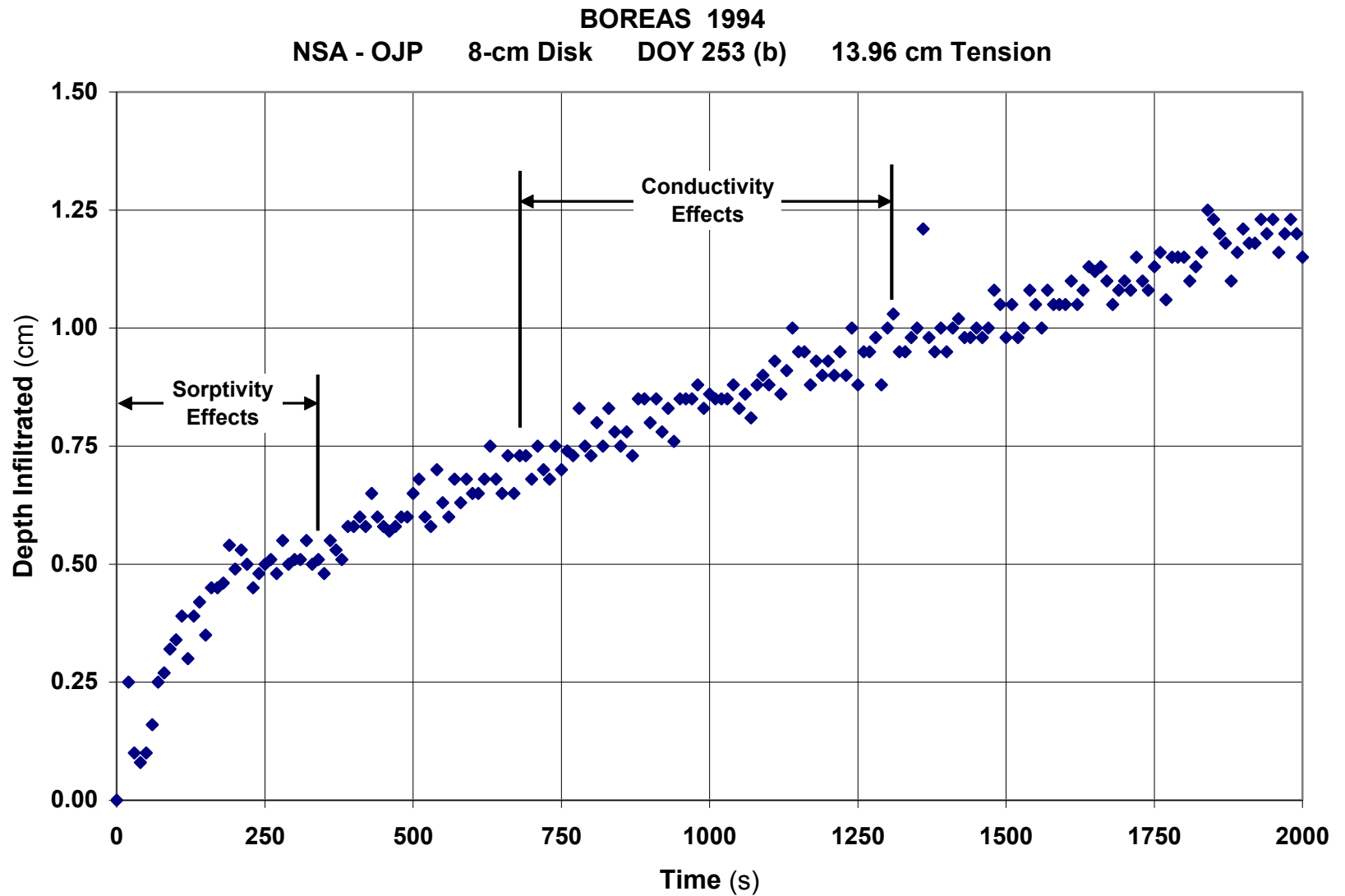
BOREAS – Infiltration Test – Loam Site



BOREAS – Infiltration Test – Clay Site

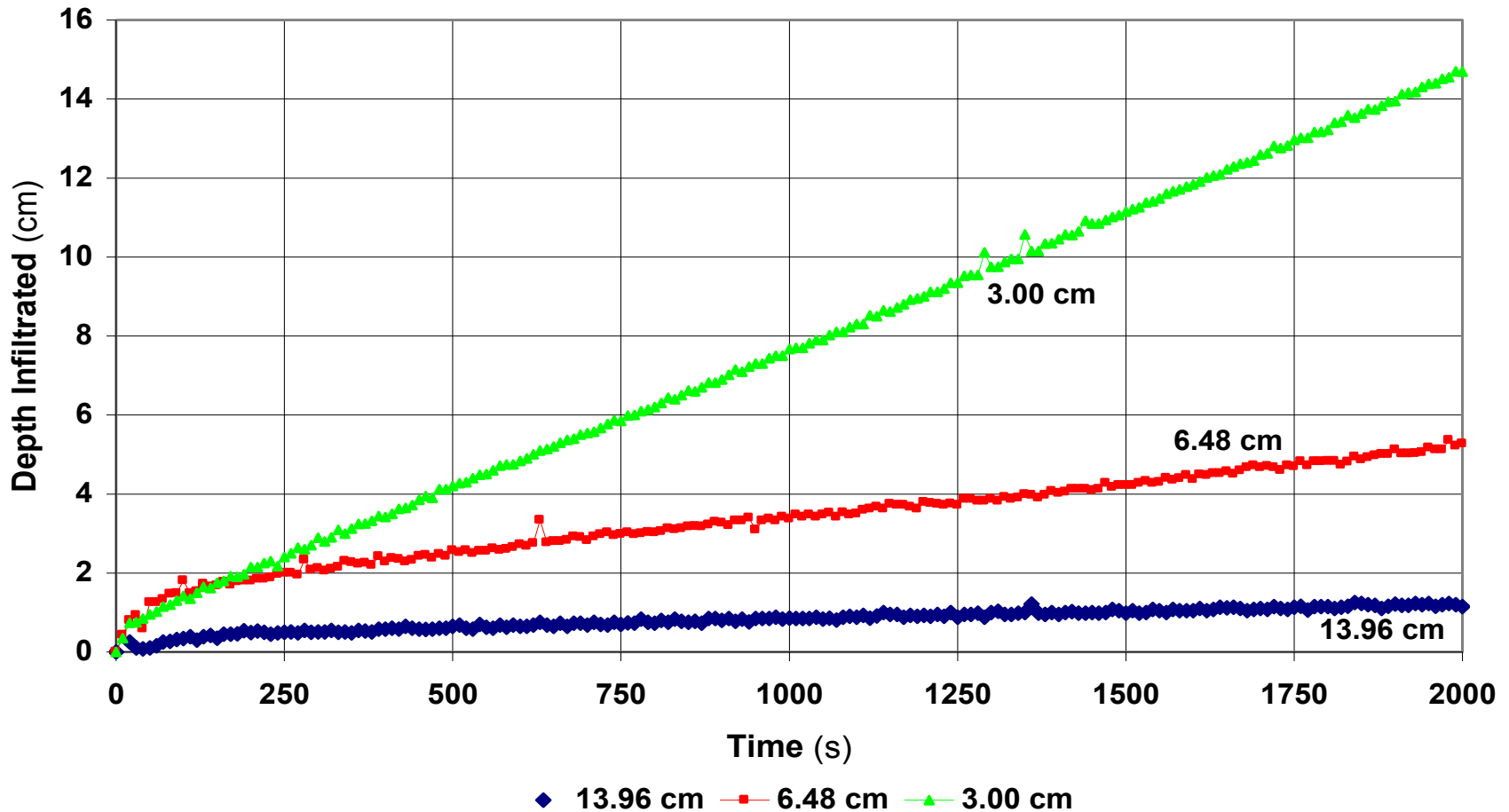


BOREAS – Infiltration Test – Results



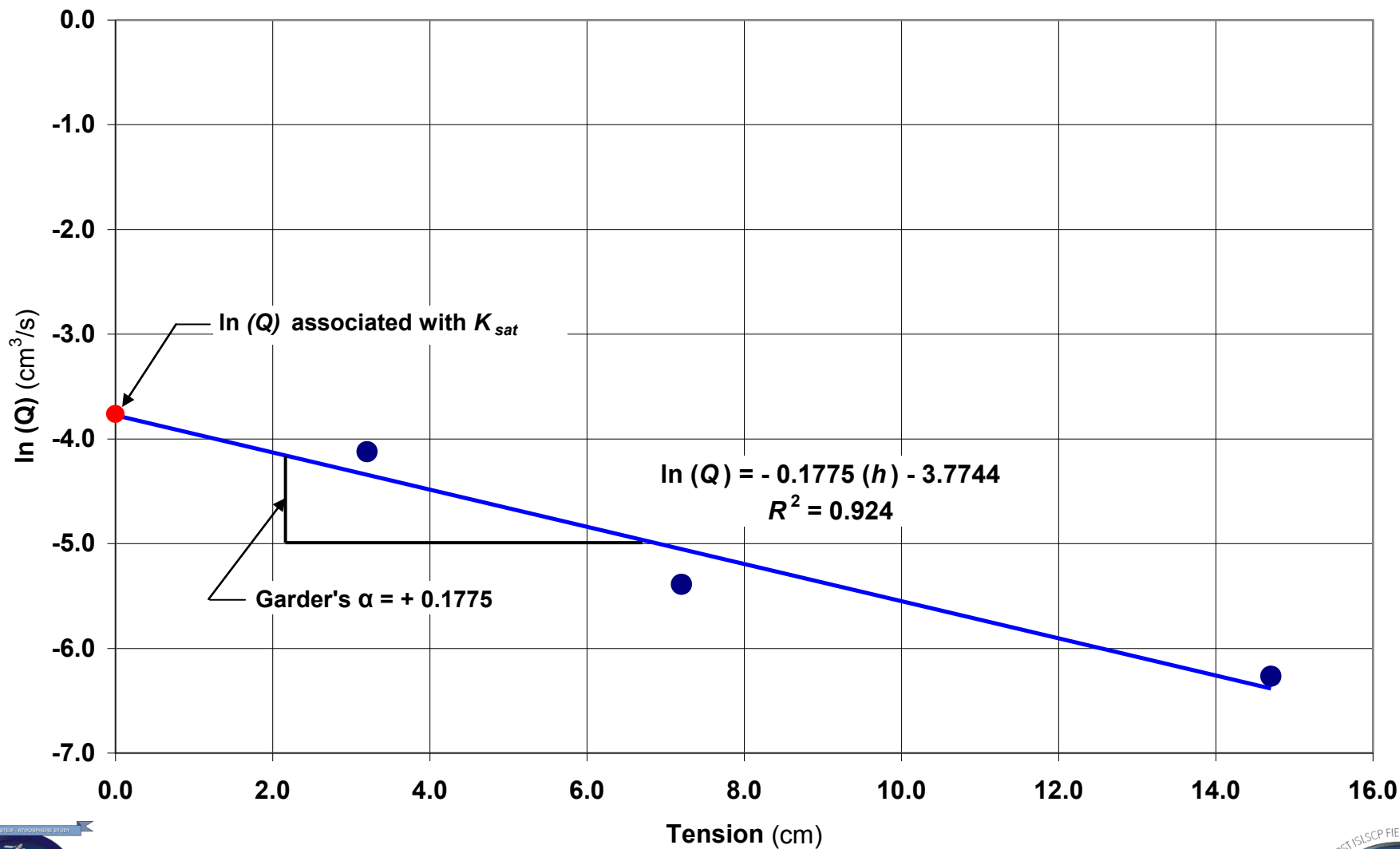
BOREAS – Infiltration Test – Results

BOREAS 1994 Tension Infiltration Test
NSA-OJP 8-cm Disk DOY 253 (b)



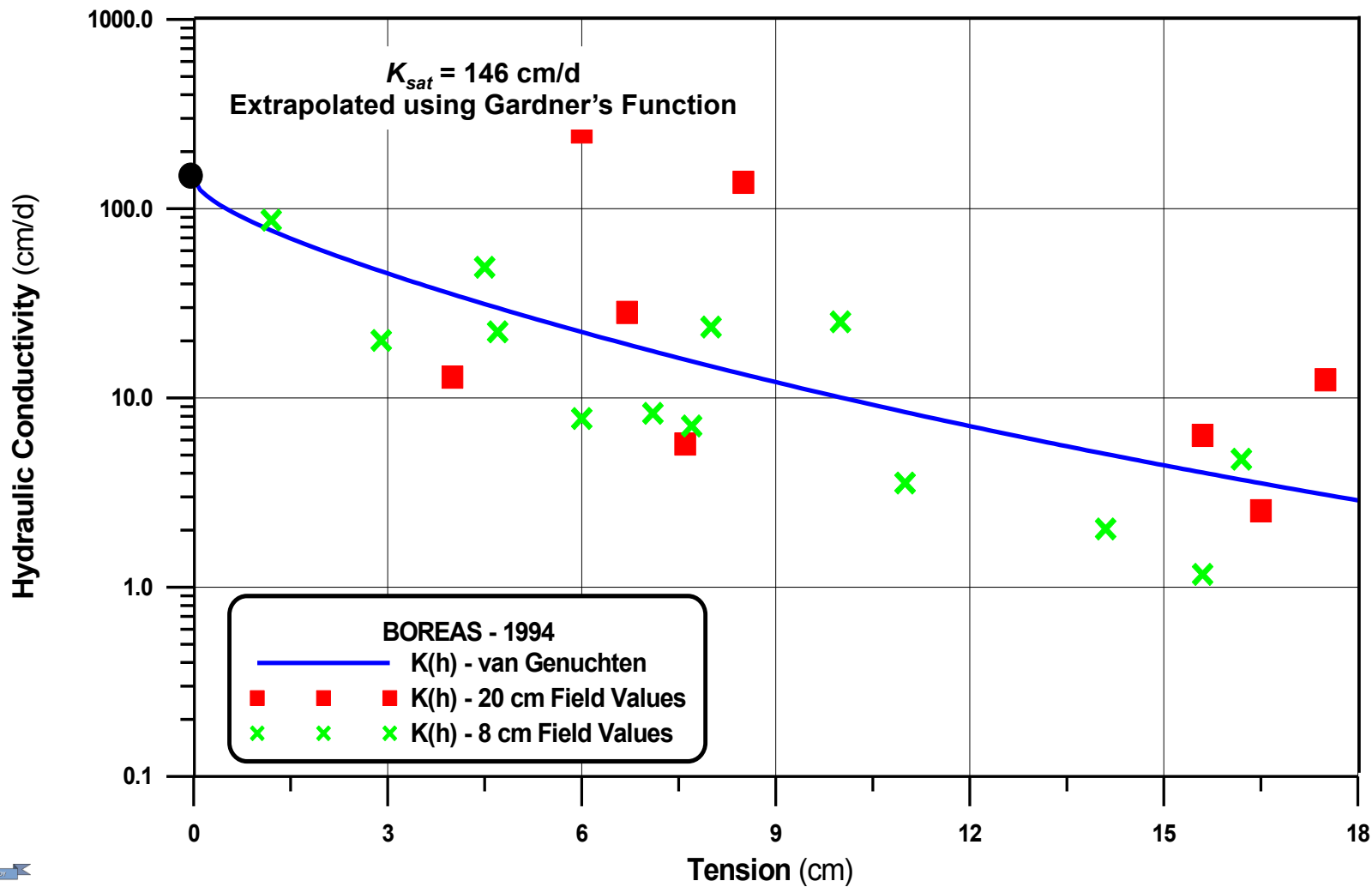
BOREAS – Infiltration Test – Results

BOREAS 1994 Tension Infiltration Test NSA-YJP 8-cm Disk DOY 251 (c)



BOREAS - Infiltration Test - Results

van Genuchten Hydraulic Conductivity Function SSA Old Jack Pine



Follow the Soil Water

Field Operations - Winter



BOREAS – NSA-OJP Breaking Trail



BOREAS – NSA-YJP Sled Trail





Mission Operations Completion Review



23 February 2016

NASA Headquarters, Washington, D.C.

Mahta Moghaddam (PI, U of Southern California)

Yunling Lou (PM, JPL)

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Rolf Reichle (GSFC), **Sassan Saatchi** (JPL)

Paul Shepson (Purdue), **Steve Wofsy** (Collaborator, Harvard)

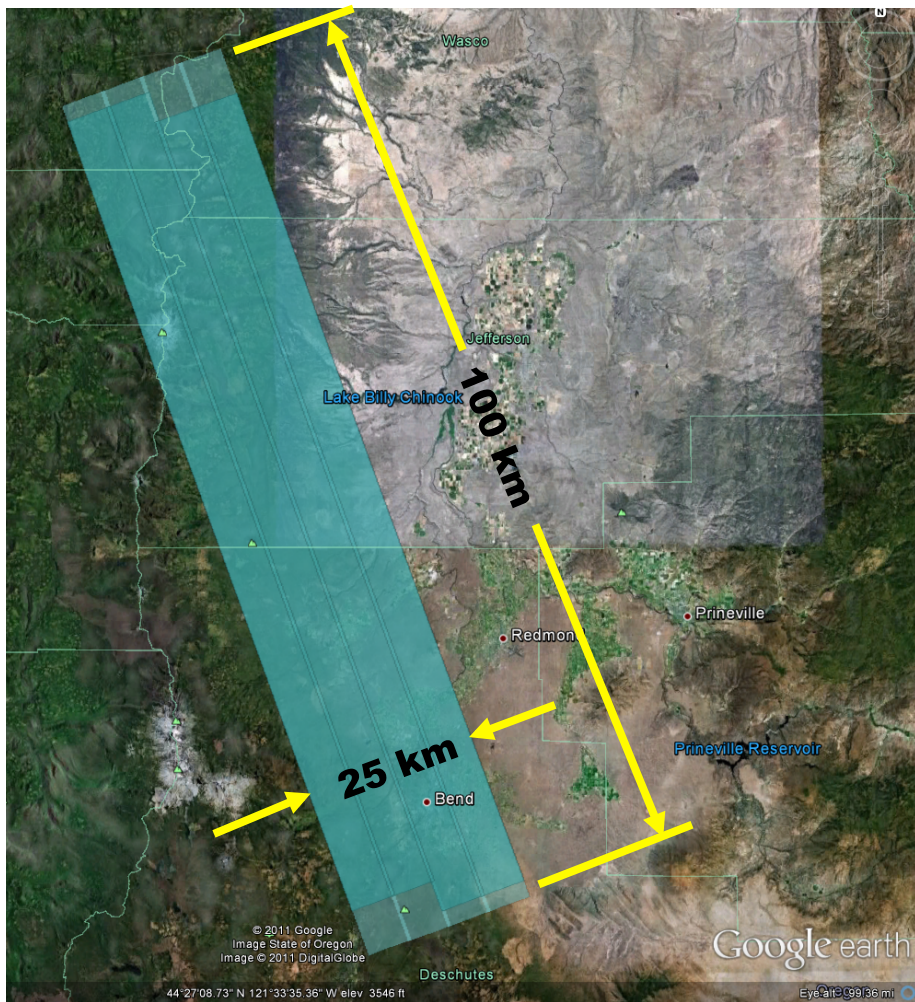


USC University of Southern California

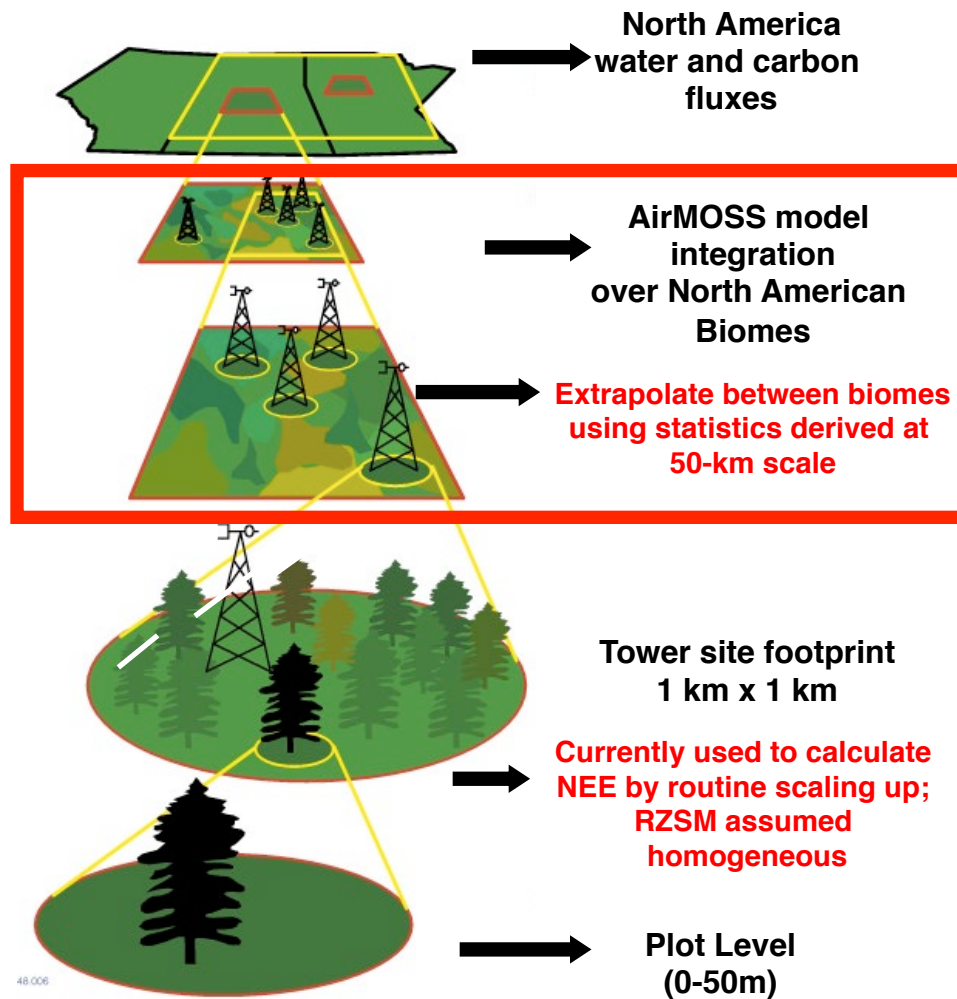


NASA AirMOSS – Scientific Approach

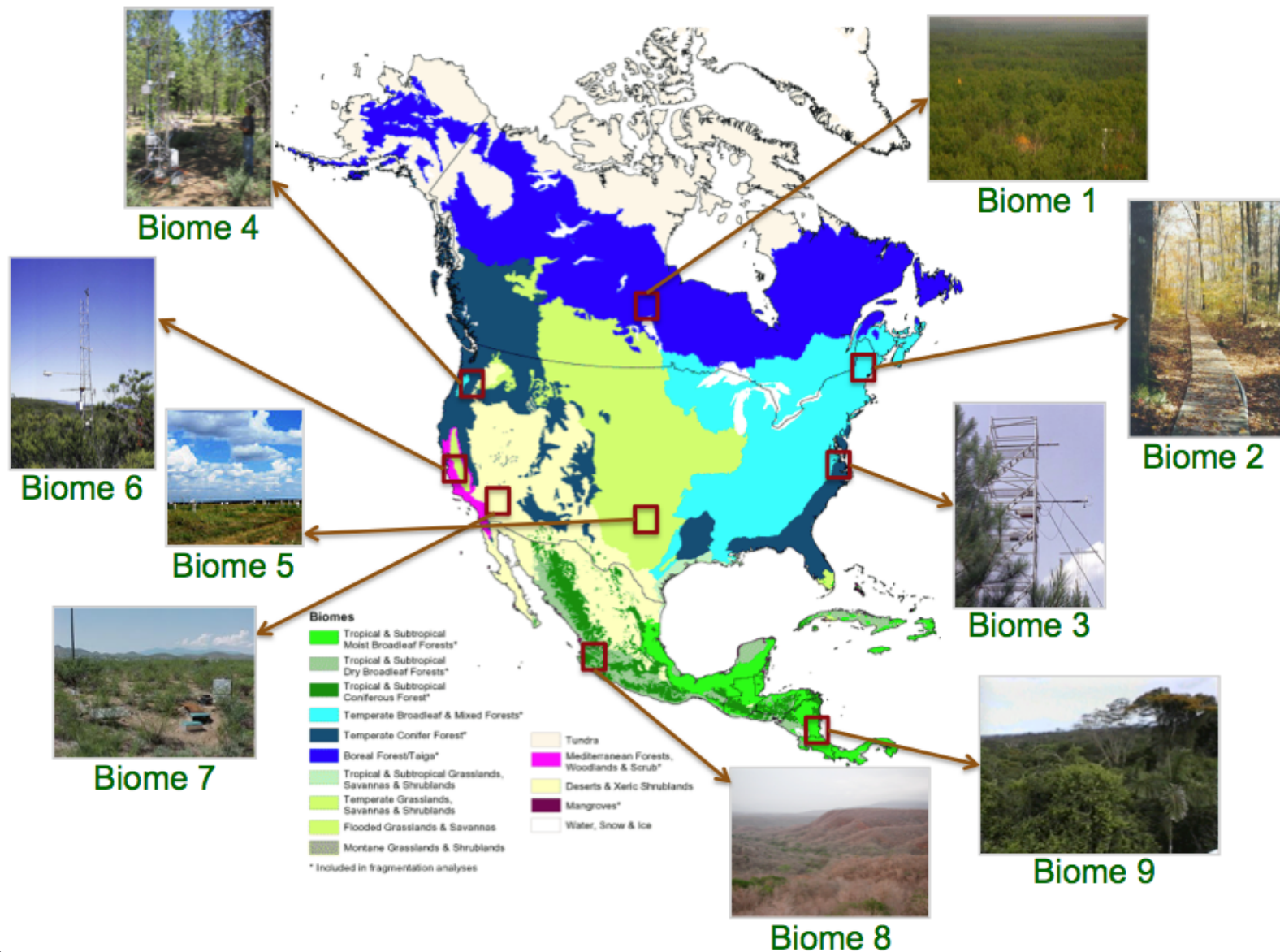
Flight Path – Metolius Site, OR



Bottom-up scaling



NASA AirMOSS – Site Selection

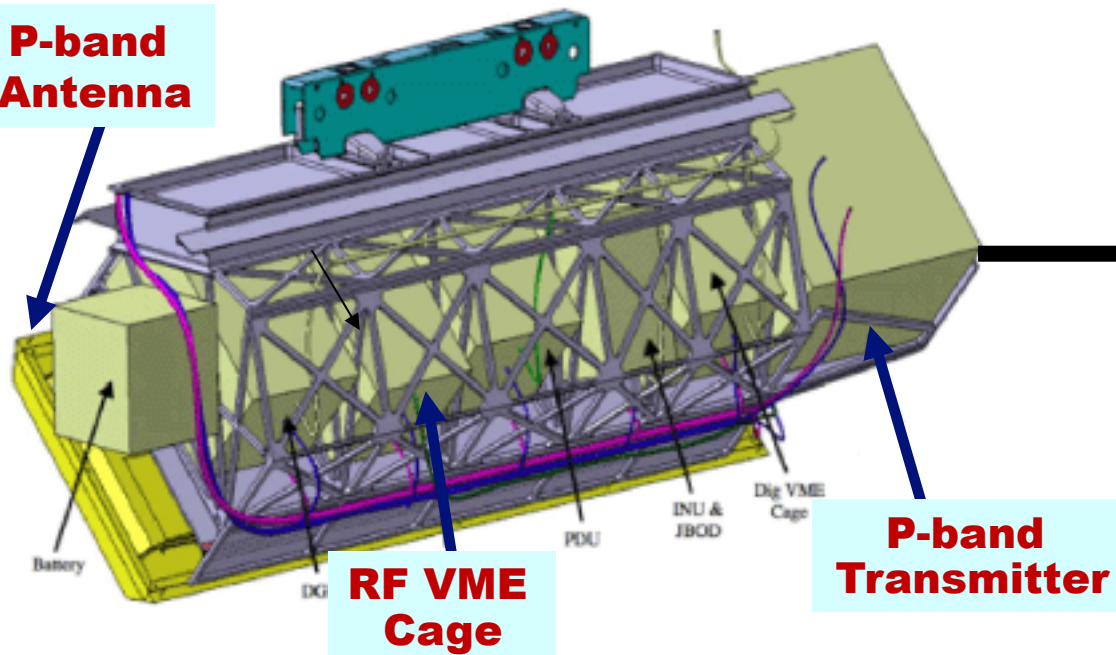


NASA AirMOSS – Hardware

AirMOSS hardware is primarily based on UAVSAR heritage. Existing UAVSAR design made accommodations to add the P-band capability.

- Antenna frame was sized to fit the GeoSAR P-band antenna
- Space in the nose cone was reserved for P-band transmitter

P-band Antenna



UAVSAR pod layout showing modularity of the electronic assemblies; assemblies in red are new build while all others are shared with UAVSAR



NASA AirMOSS – P-Band Radar Pod



NASA AirMOSS – P-Band Radar Pod



NASA AirMOSS – Gulfstream III Flight and Science Crew



Follow the Soil Water

NASA AirMOSS – Gulfstream III Business Class



NASA AirMOSS – SSA OA Site Installation



NASA AirMOSS – SSA OA Site Installation



Astronaut Piers Sellers, ISS Mission

