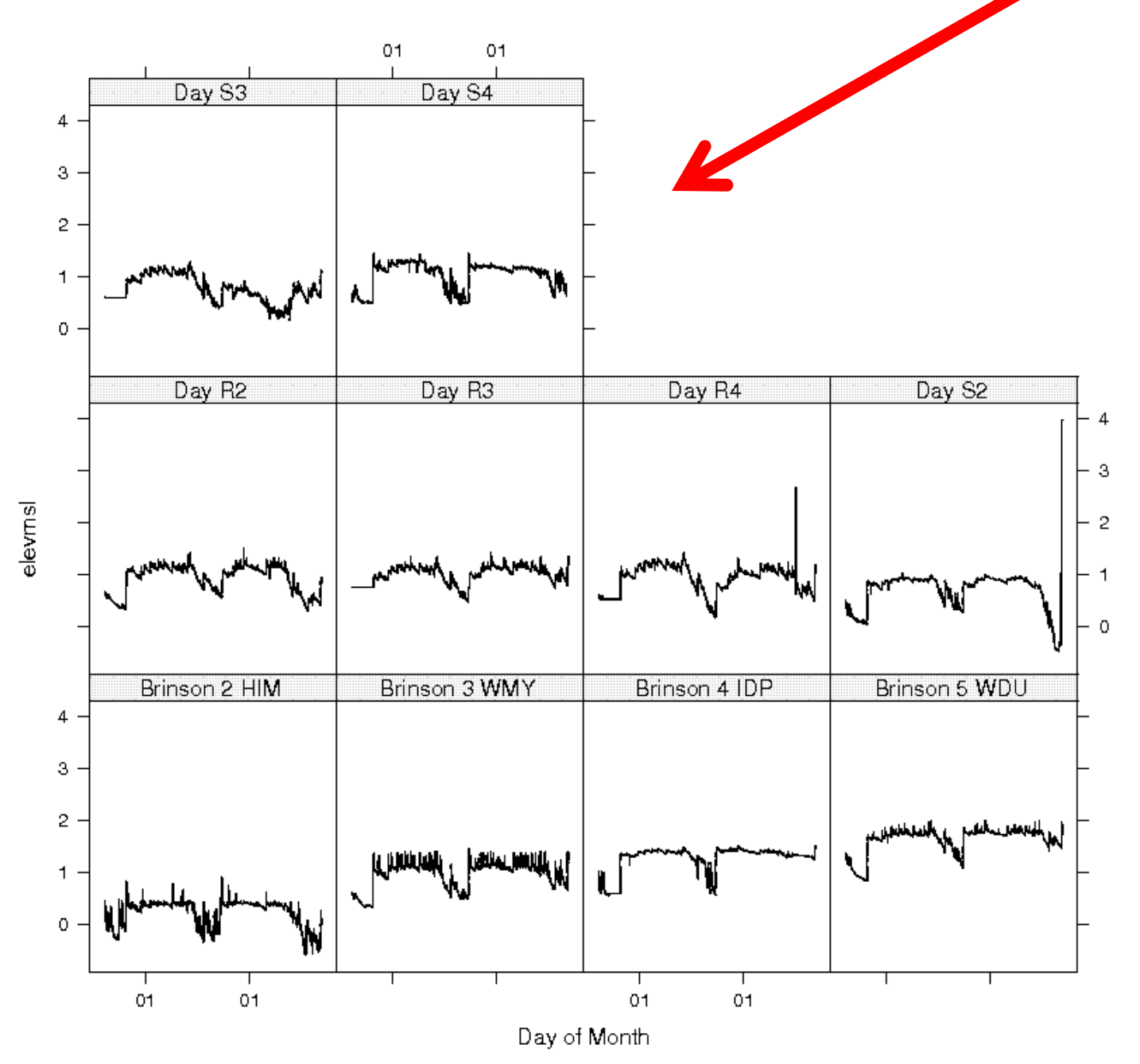
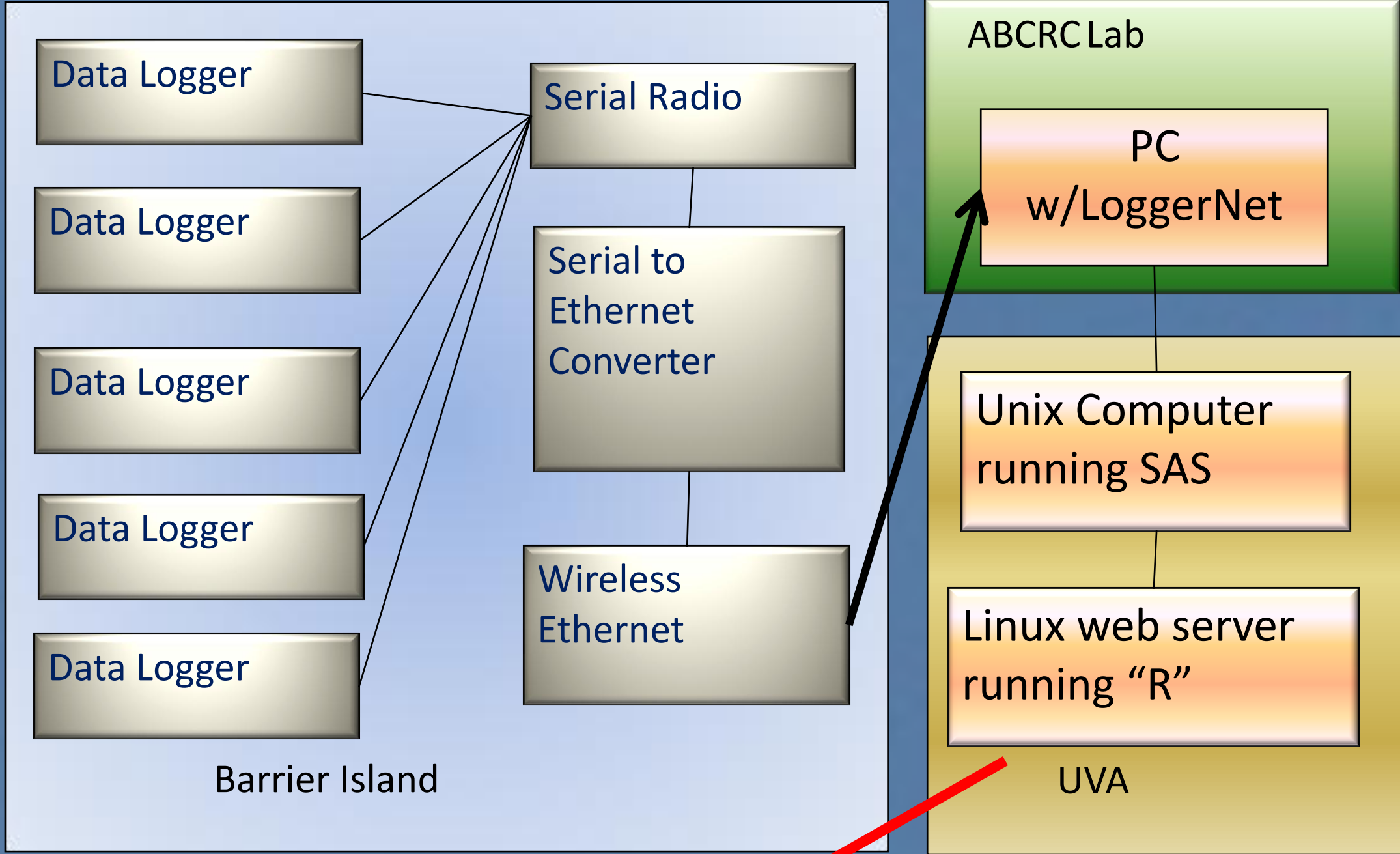
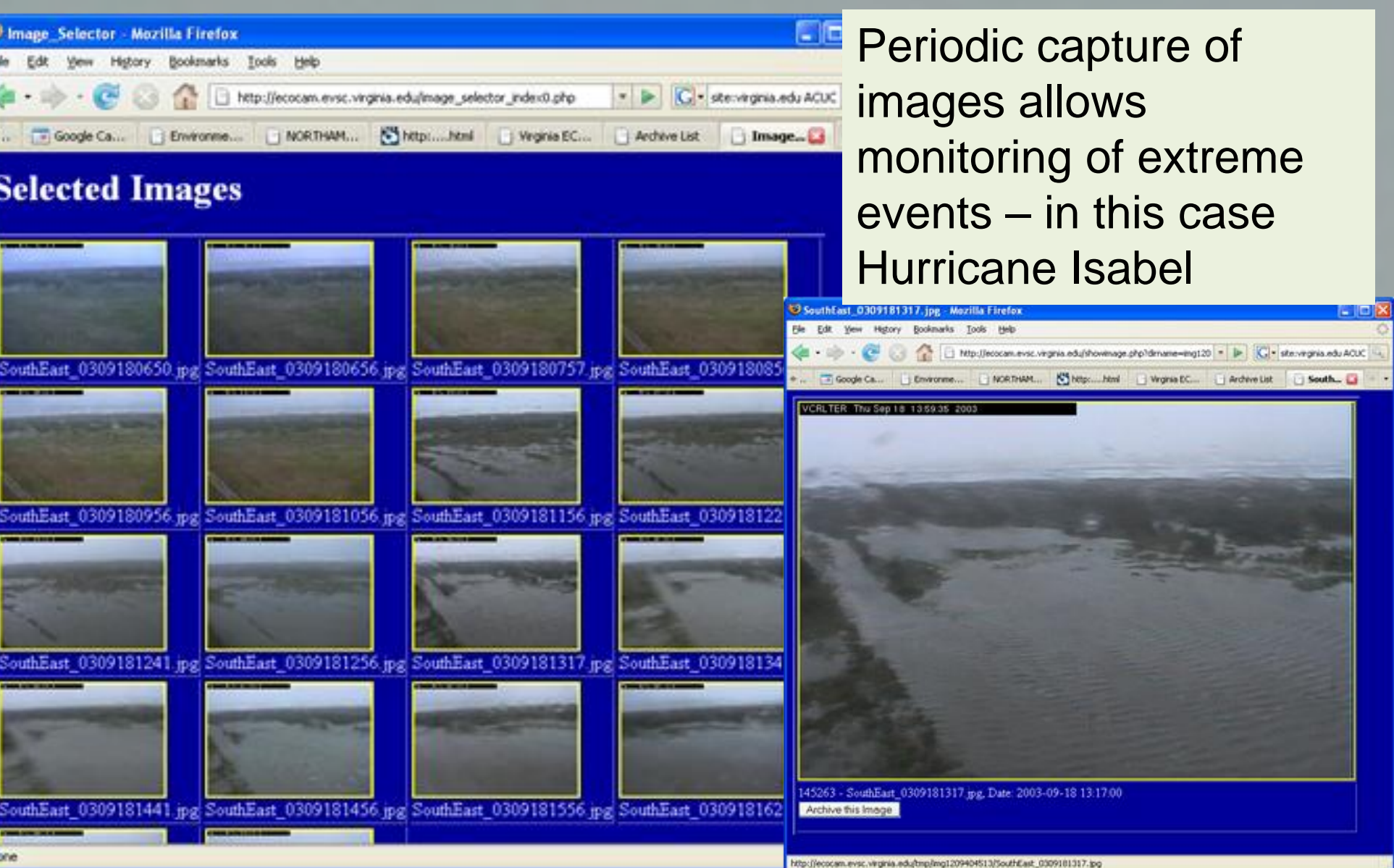
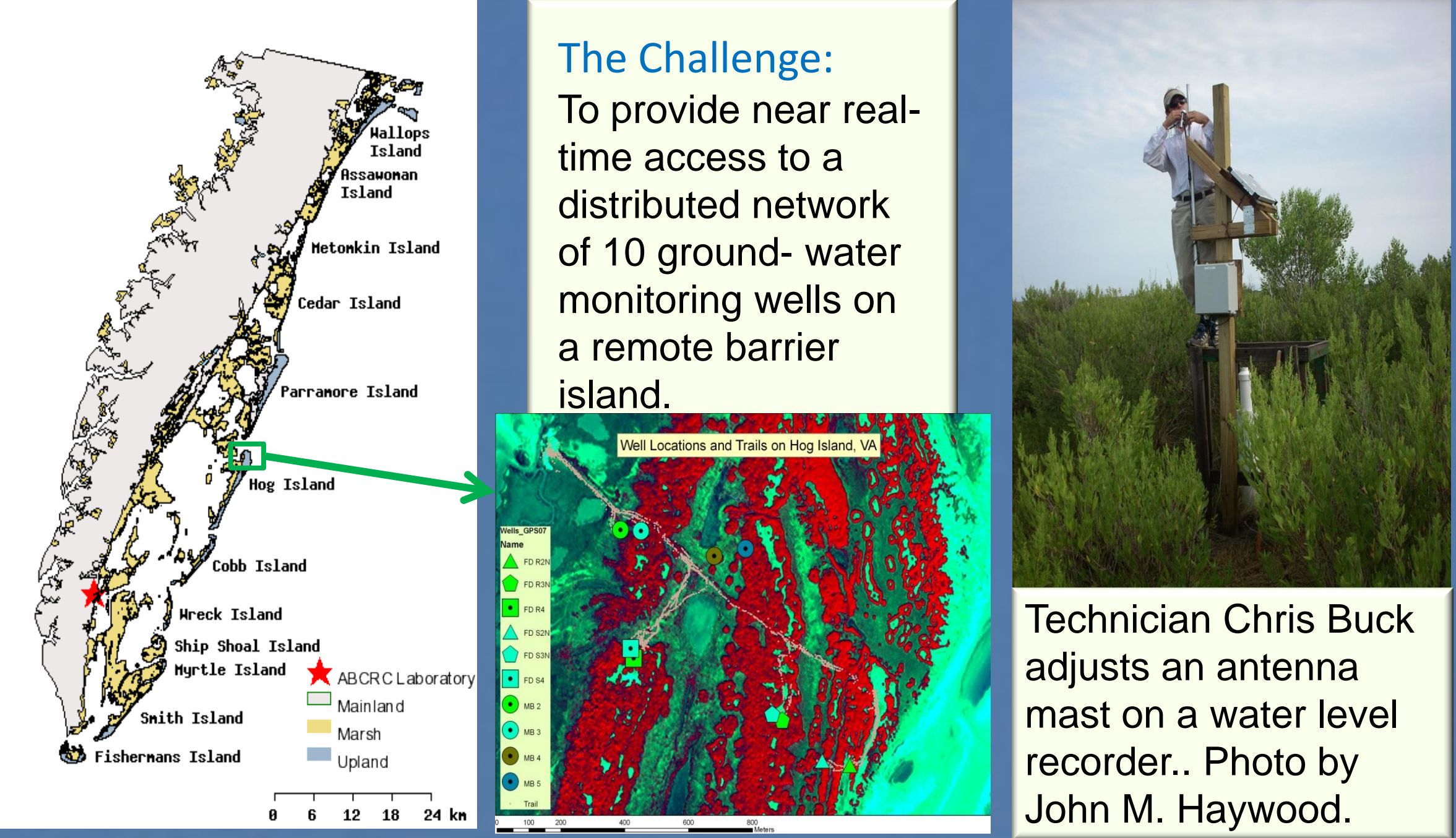
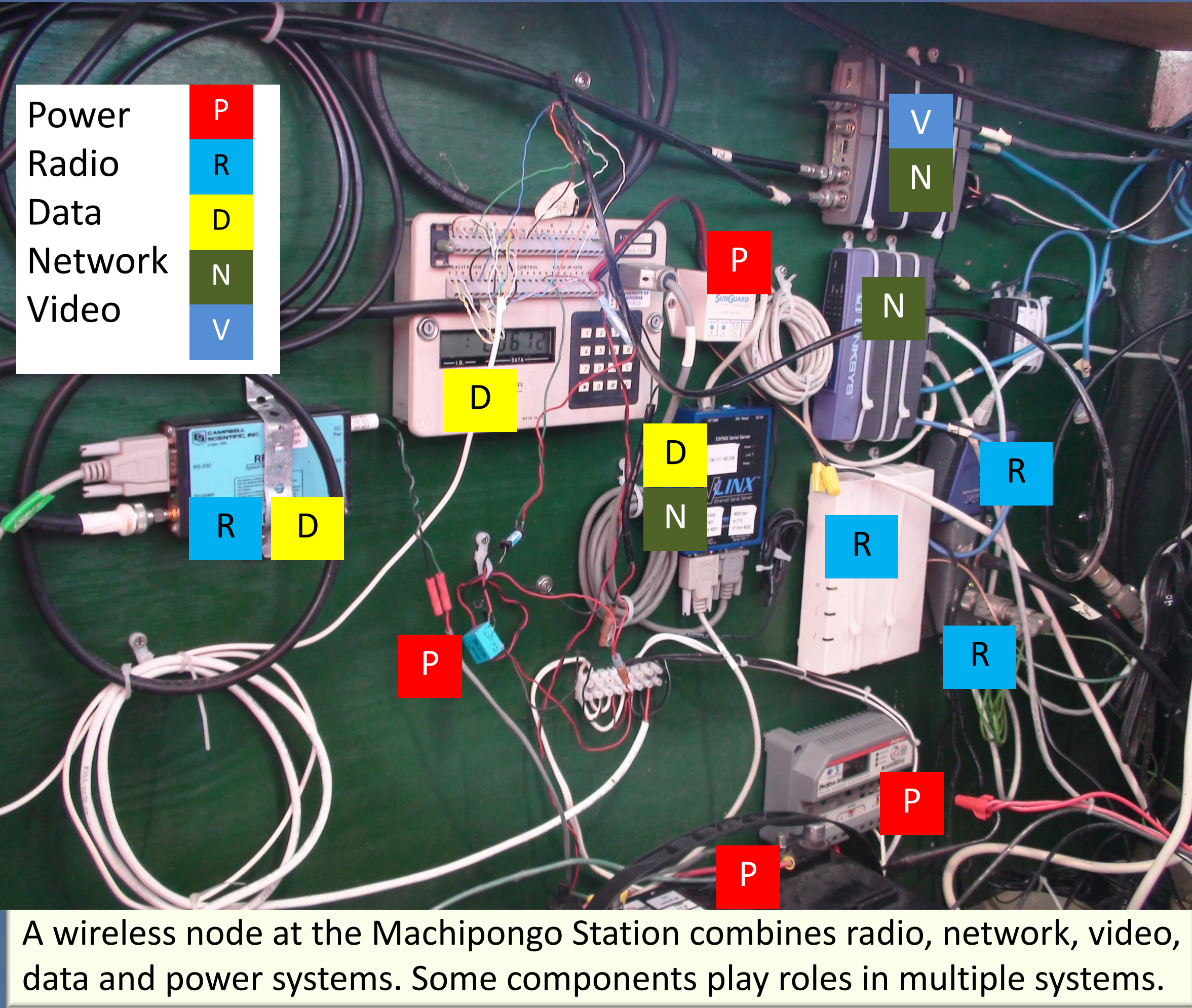
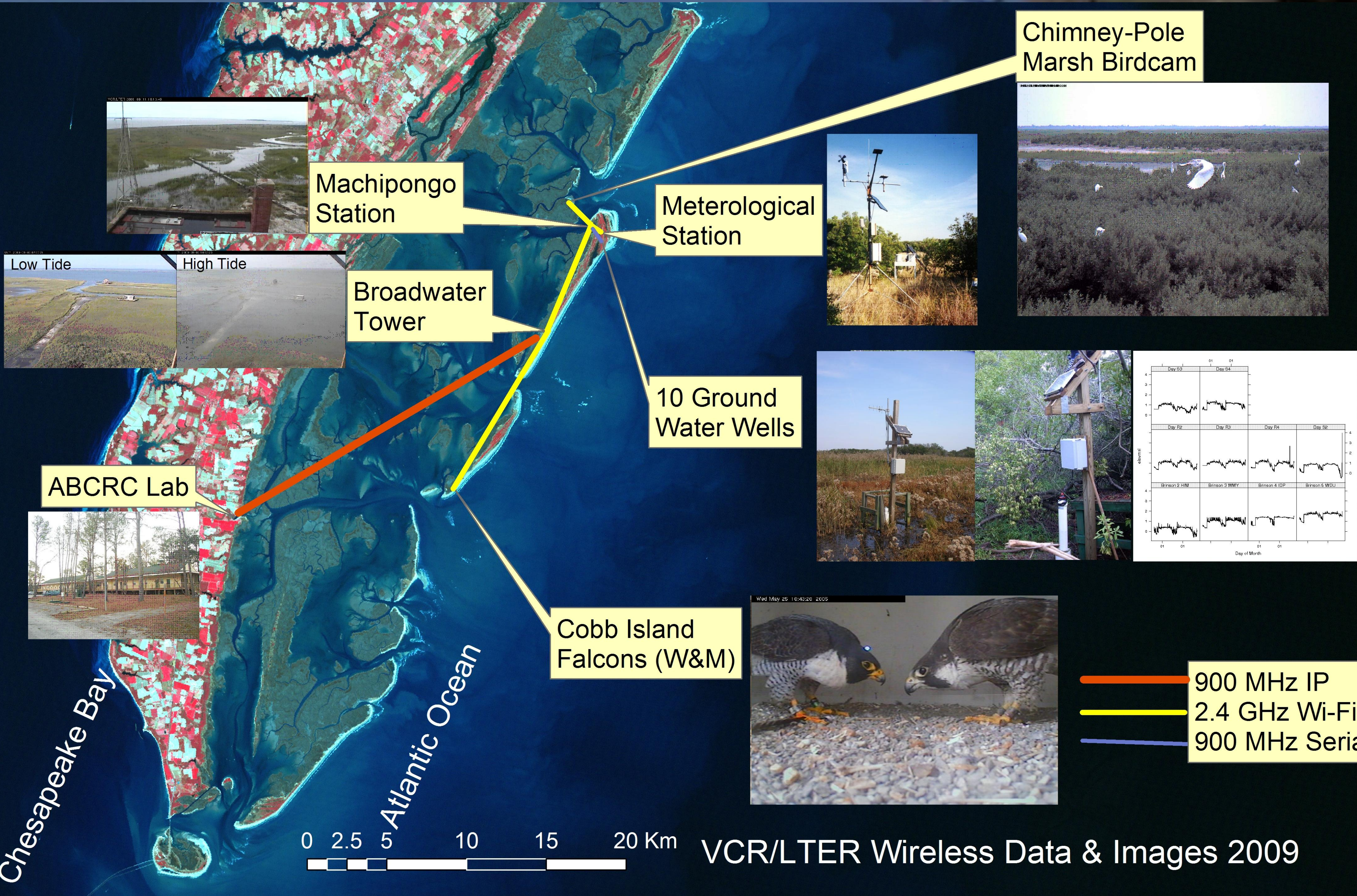


Live from the field: Capturing Images and Data from a Barrier Island via Wireless Networking

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ABSTRACT:

Wireless networks provide new opportunities for retrieving data from the field - and to support new types of data. At the Virginia Coast Reserve Long-Term Ecological Research Project we have employed wireless networks to connect to three barrier islands, with some connections spanning over 20 km. The wireless network is used to integrate a variety of data sources. A network of ten wells, meteorological and tide stations produce data that is automatically processed to create a dataset or graph on the World-Wide Web. We also use webcams to produce a variety of time-series image series, capturing changes in landscapes, as well as monitoring animals (e.g., birds) and extreme events (e.g., flooding). Images are archived and indexed with a relational database to create a variety of animations and index pages.



An automated workflow takes data from the sensor to the lab and automatically process the data to create graphics and other reports several times per day.

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Camera Locations	Cameras	# Images per Harvest	Frequency of "Live" Data/ Bandwidth Required	Frequency of Archival Collections	Archived Dates	Number of Images Archived
Broadwater Tower - Landscape	1 PTZ	20	5 seconds / 3 KB/sec	Hourly	April 2002- present	708,938
Machipongo Station - Landscape and CrabCams	1 PTZ, 1-3 fixed	6-8	10 seconds / 6 KB/sec	Hourly	April 2003- present	108,688
Machipongo Station Landscape/Birds	Scan of PTZ camera	132	N/A	Bi-Hourly	July 2006-present	960,920
Chimney-Pole Marsh - Heronry	1 fixed	1	5 Hz / 1 MB/sec	Variable (change detection)	July 2003-August 2003	10,329
Cobb Island - FalconCam	1 PTZ, 3 fixed	2-4	2-10 seconds / 12 KB/sec	10-minutes to Hourly	May 2005- present	85,581 (stored but not archived)
Other FalconCams	3 PTZ, 9 fixed	1-4	5-10 seconds / 36 KB/sec	Not archived	Not archived	Not archived



Low Tide

High Tide

Automatic Photomosaics: Sets of images provide unique capabilities - combining high-resolution with broad spatial extents. Sets of 132 images are captured every two hours.