

# Spatial and Temporal Variation in West Virginia's Temperature and Precipitation

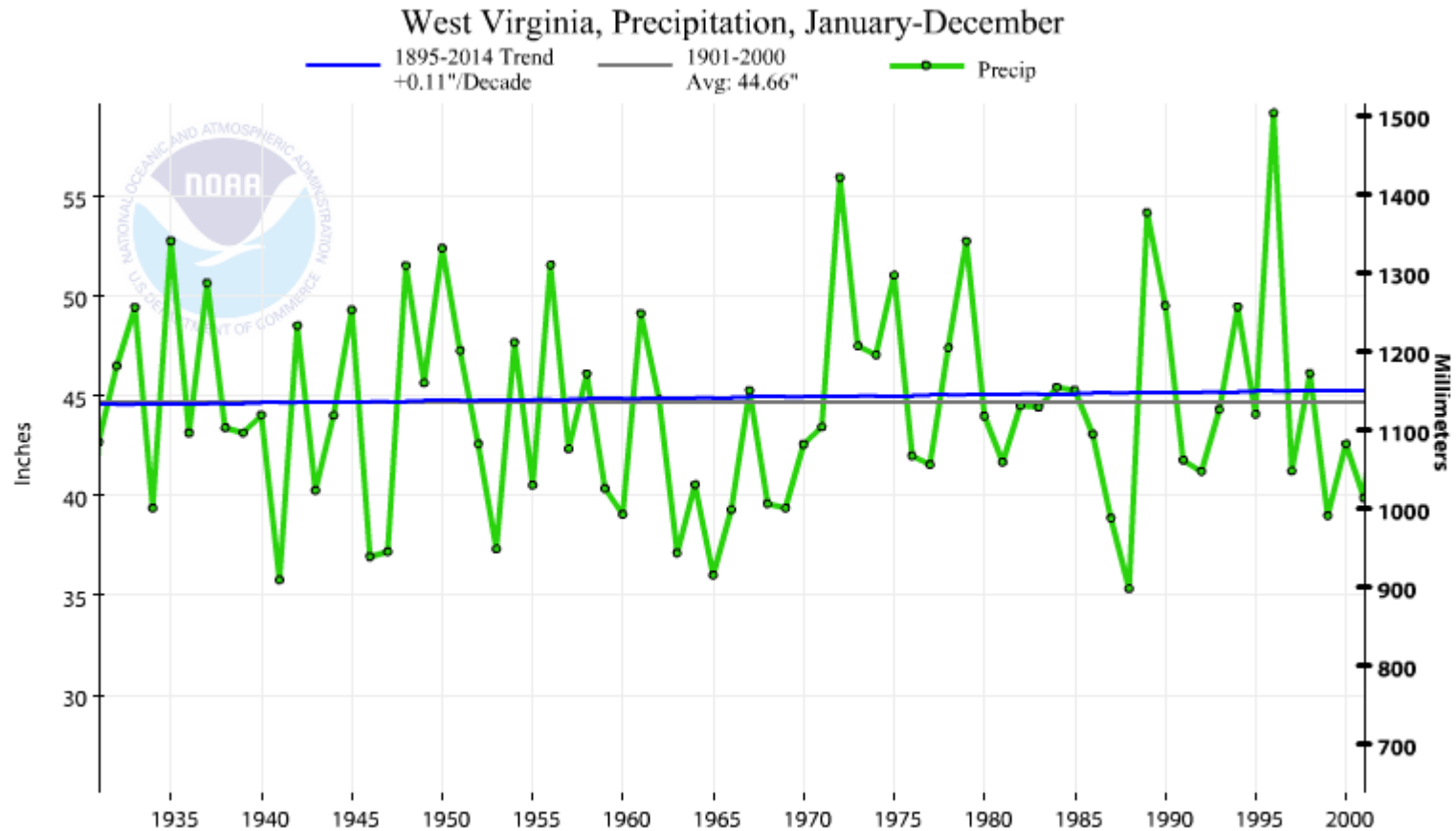
Climate Change & West Virginia's  
Forests 2015

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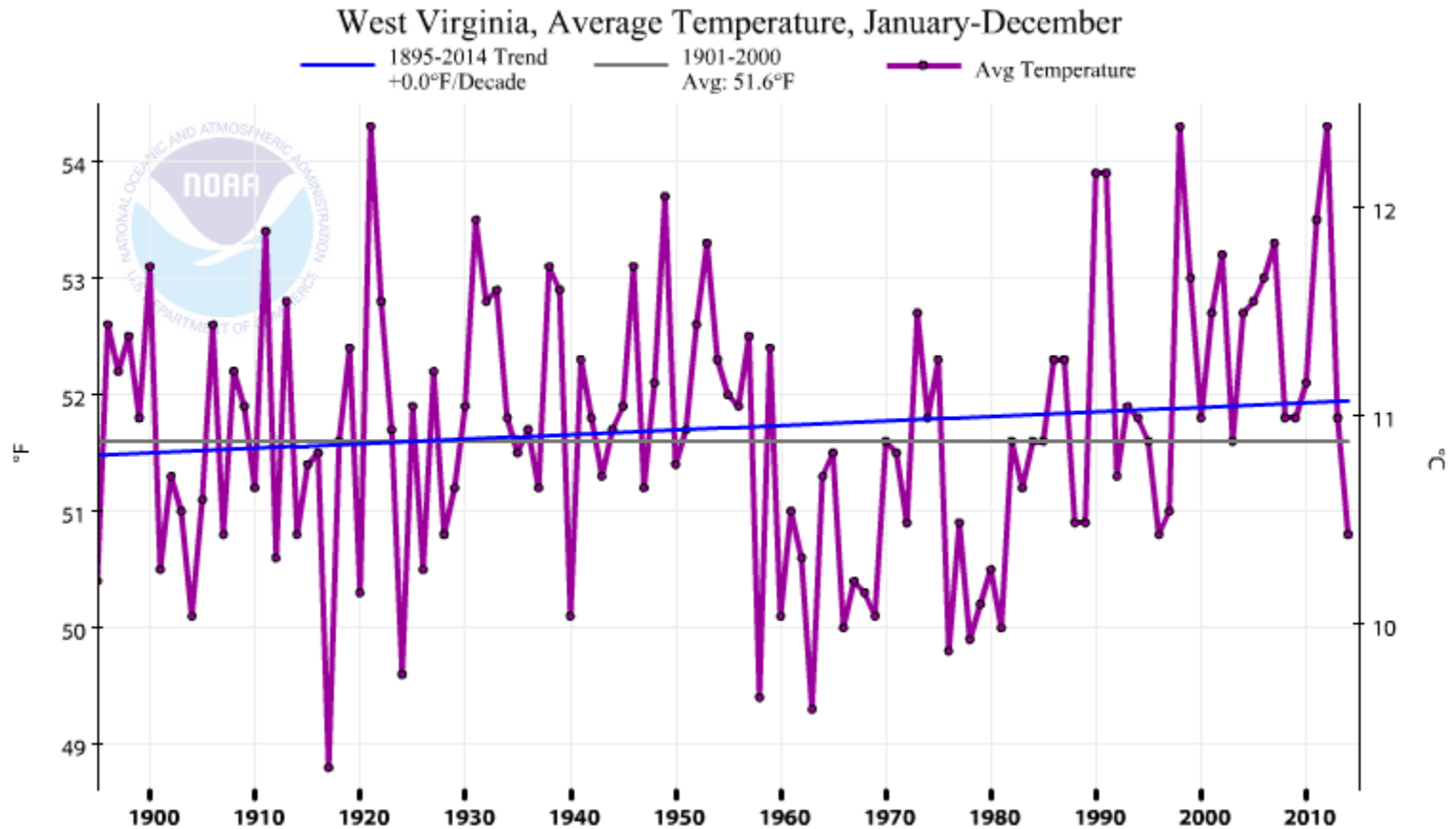
# Why study West Virginia?

- Significant climate variation over short distances
- “Absence” of anthropogenic sources of climate change
- Nearness to Gulf of Mexico and Atlantic

# Statewide changes in precipitation over time

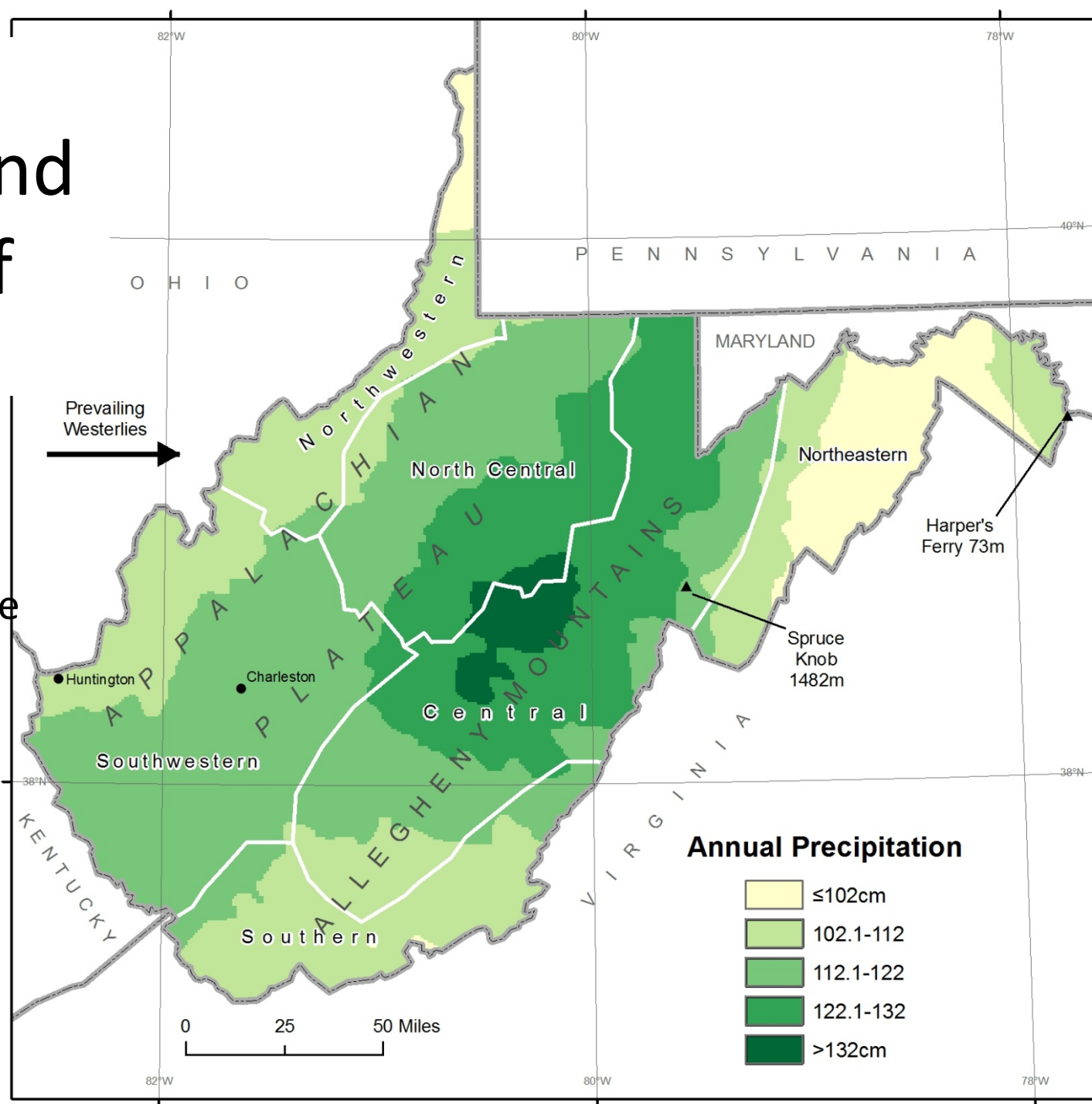


# Statewide changes in temperature over time



# Climate controls and forces of change

- Latitude
- Elevation
- Ocean influence
- Population change
- Land cover change
- Tropical cyclones
- Global temperature changes



# Precipitation data

- Stations vs. division normals
- Data overview 1931-2010

Division	1931-1960	1981-2010	Change	%Change
Northwestern	105.1cm (41.37in)	105.6cm (41.59in)	+0.5 cm (+0.22 in)	+0.1%
North Central	116.7cm (45.93in)	114.3cm (45.00in)	-2.4 cm (-0.93 in)	-2.0%
Southwestern	107.6cm (42.37in)	112.8cm (44.42in)	+5.2 cm (+2.05 in)	+4.8%
Central	128.1cm (50.43in)	128.9cm (50.76in)	+0.8 cm (+0.33 in)	+0.7%
Southern	99.5cm (39.16in)	106.2cm (41.8in)	+6.7 cm (+2.64 in)	+6.7%
Northeastern	90.4cm (35.60in)	95.7cm (37.66in)	+3.9cm (+2.06 in)	+5.8%

# Precipitation change 1931-2010



# Forest cover change 1931-2000





# Precipitation change by season 1931-2010

Division	Change DJF	Change MAM	Change JJA	Change SON
Northwestern	-0.86cm (-0.34in) -3.9%	+0.15cm (+0.06in) +0.5%	-1.68cm (-0.66in) -5.4%	+2.95cm (+1.16in) +14.2%
North Central	-1.07cm (-0.42in) -4.2%	+1.65cm (+0.65in) +5.4%	-1.57cm (-0.62in) -4.6%	+3.12cm (+1.23in) +13.5%
Southwestern	-0.86cm (-0.34in) -3.5%	+1.80cm (+0.71in) +6.7%	-0.15cm (-0.06in) -0.5%	+4.42cm (+1.74in) +21.9%
Central	-0.46cm (-0.18in) -1.6%	+1.18cm (+0.44in) +3.2%	-2.82cm (-1.11in) -7.7%	+3.00cm (+1.18in) +12.2%
Southern	+0.79cm (+0.31in) +3.4%	+2.26cm (+0.89in) +8.3%	-0.33cm (-0.13in) -1.1%	+3.99cm (+1.57in) +21.4%
Northeastern	+1.68cm (+0.66in) +10.0%	+2.31cm (+0.91in) +9.5%	-1.96cm (-0.77in) -7.2%	+3.20cm (+1.26in) +15.7%

# Change over time in tropical cyclones near WV

Normal period	Crossing	Within 200 km	SON within 200 km	Total track length within 200 km	Storm points within 200 km
1931-1960	7	16	7 – 44%	8,876 km	47
1981-2010	7	26	16 – 62%	11,983 km	68

# Mean Annual Temperature 2014



# Temperature Data

- Mean annual temperatures in °F

Division	1895	2014	Change	%Change
Northwestern	50.3	51.0	+0.7	+1.4%
North Central	50.5	51.3	+0.8	+1.6%
Southwestern	53.1	53.3	+0.2	+0.4%
Central	48.0	48.2	+0.2	+0.4%
Southern	51.5	51.4	-0.1	-0.3%
Northeastern	49.7	50.6	+0.9	+1.8%

# Change in Mean Annual Temperatures

