



Rapid Ecoregional Assessment

**Assessment Management
Team Meeting # 5 –
Preliminary Assessment
Results
Day 2**



Reconvene, Overview of the day's agenda



AMT Workshop V: Outline (General)

Tuesday September 27, 2011

8:00-8:30a Reconvene, Overview of the day's agenda

8:30p-10:00a 2025 land use scenario

10:15-12:00p Climate Space Trends analysis

12:00p Lunch (on your own)

1:00-2:15p Climate change effects (how are CEs changing?)

2:30-4:00p Final report outline/product formats (Ford)

4:00-5:00 Discussion, recap parking lot items, & identify new agenda items



2025 land use scenario (where are
CAs forecasted to overlap with
CEs?)



2025 Scenario

Primarily addresses MQs about CA cumulative impacts

- Everything from current scenario
- Major energy/infrastructure projects in agency approval pipeline as of May 2011
- Forecast urban land uses at 2025
- Forecast invasive species distribution
- Forecast fire regime changes



2025 Scenario

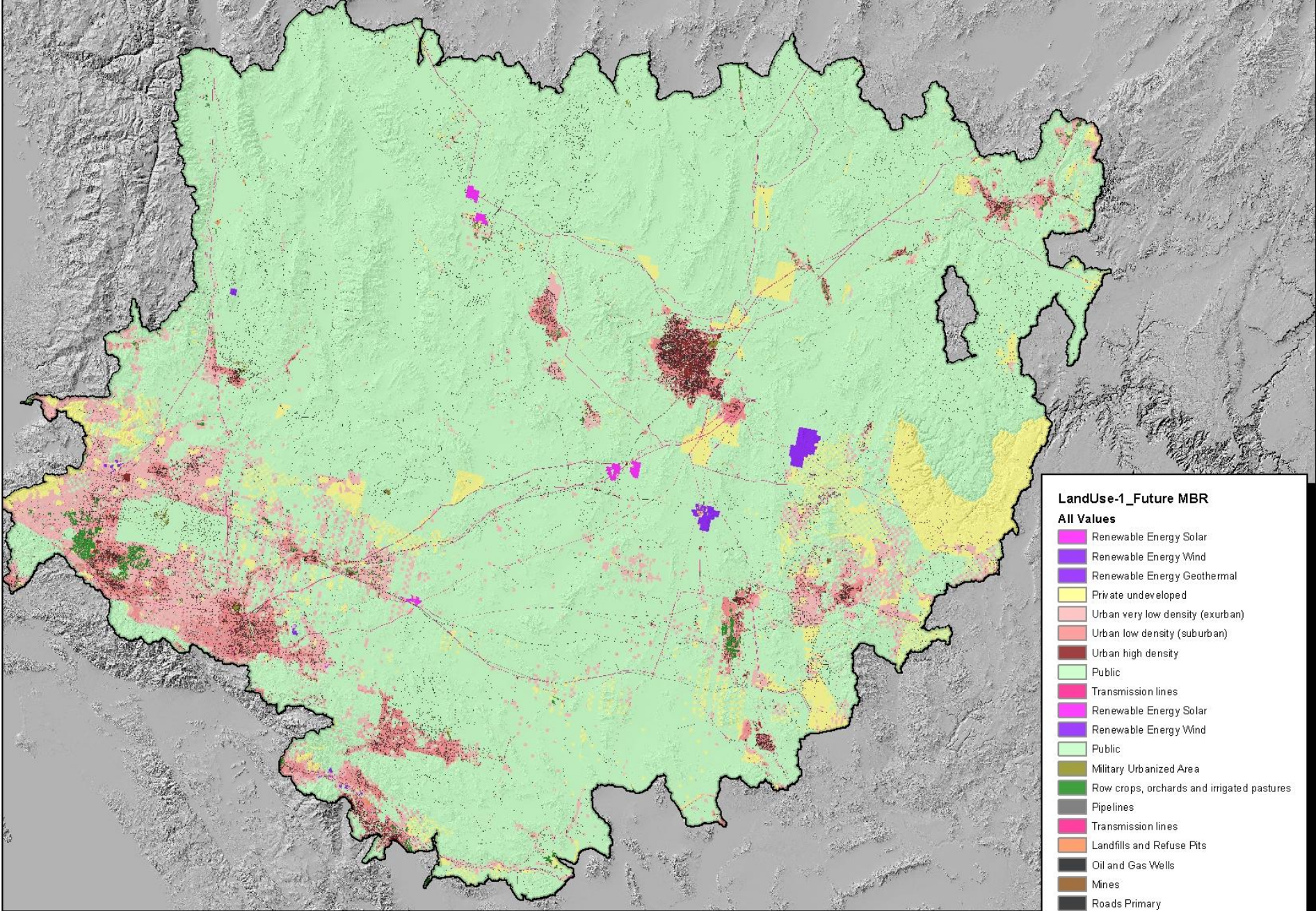
- Where are areas of planned or potential development CAs?
- Where do current locations of CEs overlap with forecasted development CAs?
- Where will locations of X,Y,Z CA potentially exist in 2025?
- Where do locations of current CEs overlap with areas of potential future locations of X,Y,Z Cas?

2025 Scenario

Primarily addresses MQs about CA cumulative impacts

- Everything from current scenario
- Major energy/infrastructure projects in agency approval pipeline as of May 2011
- Forecast urban land uses at 2025
- Forecast invasive species distribution
- Forecast fire regime changes



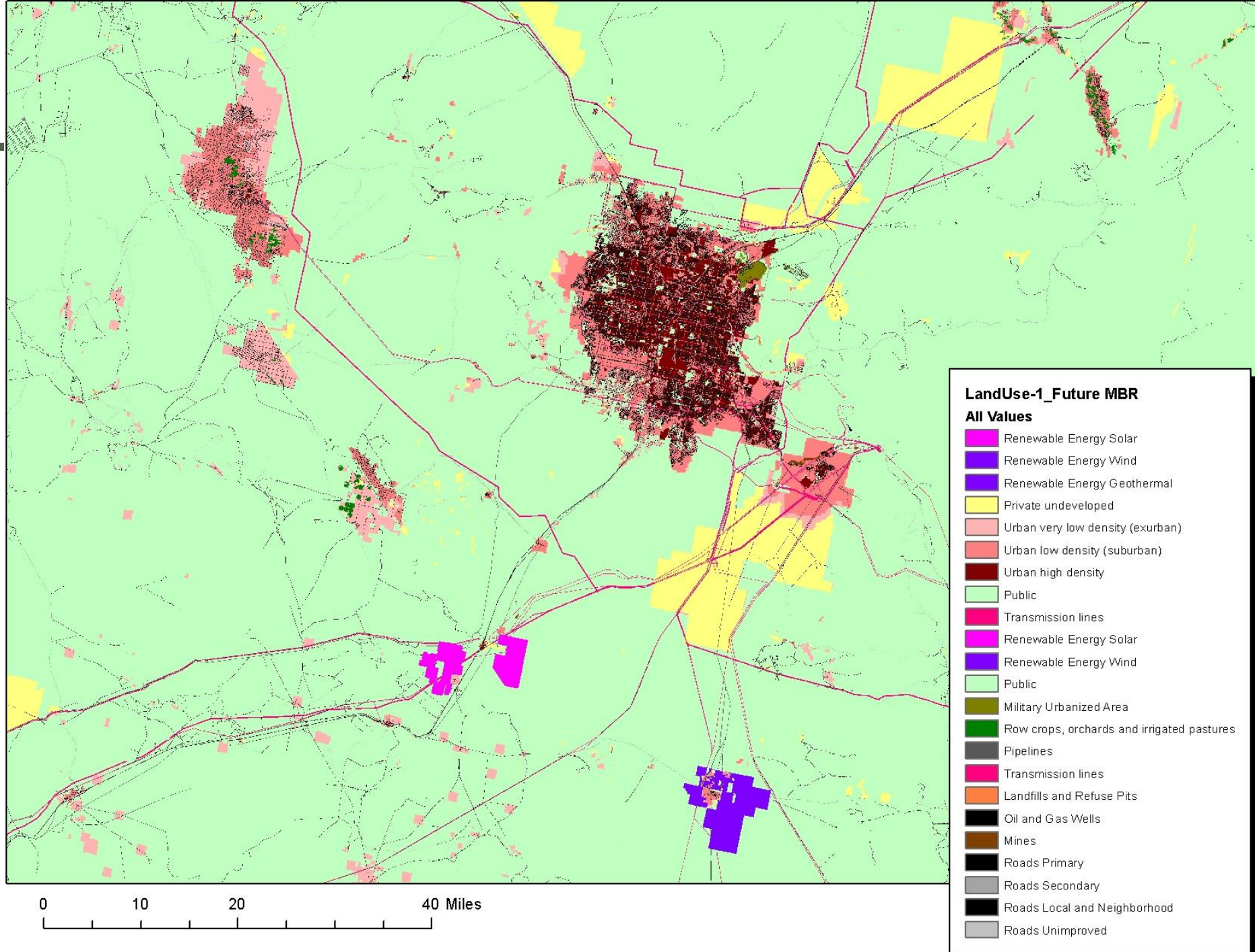


LandUse-1_Future MBR

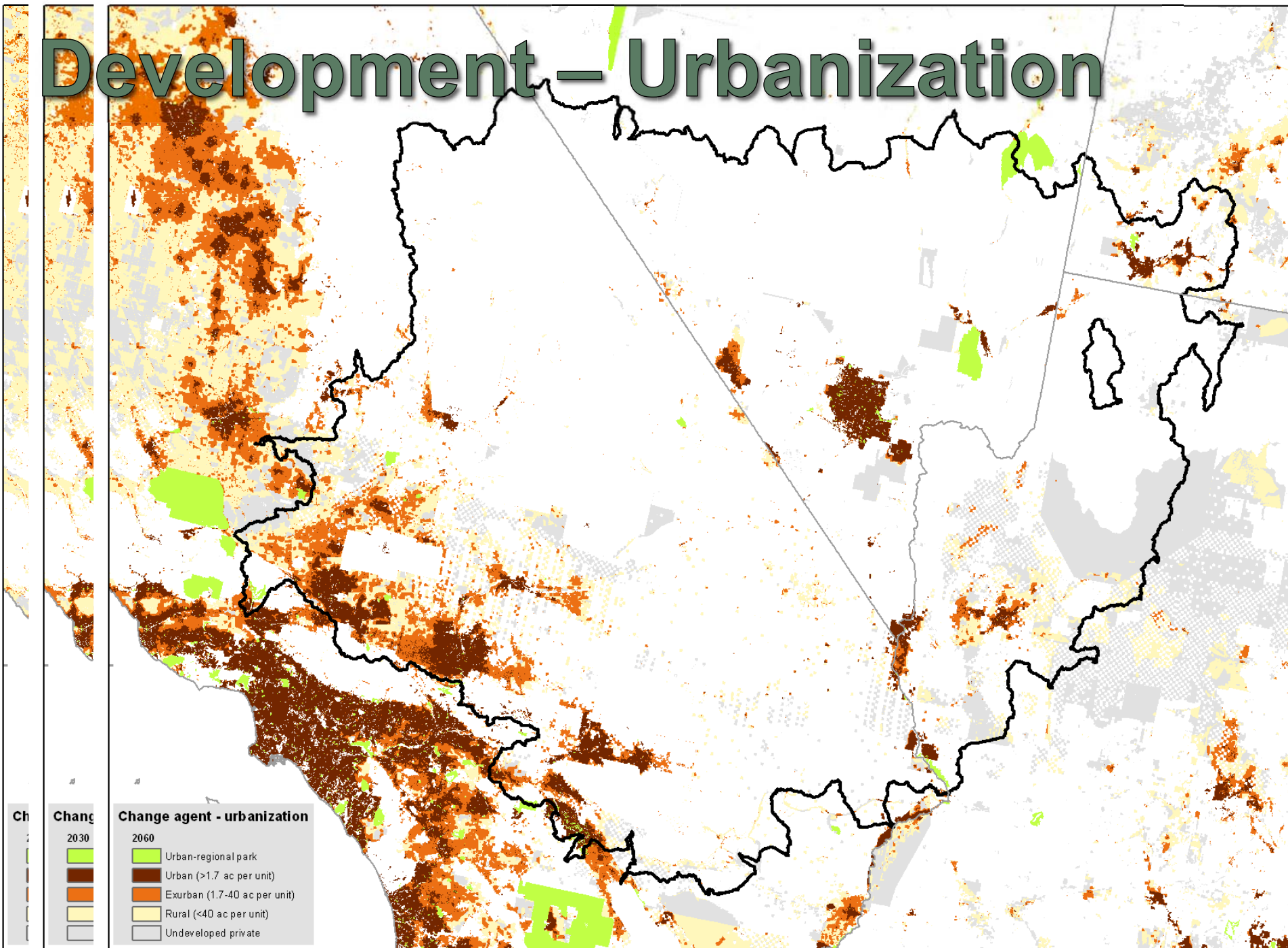
All Values

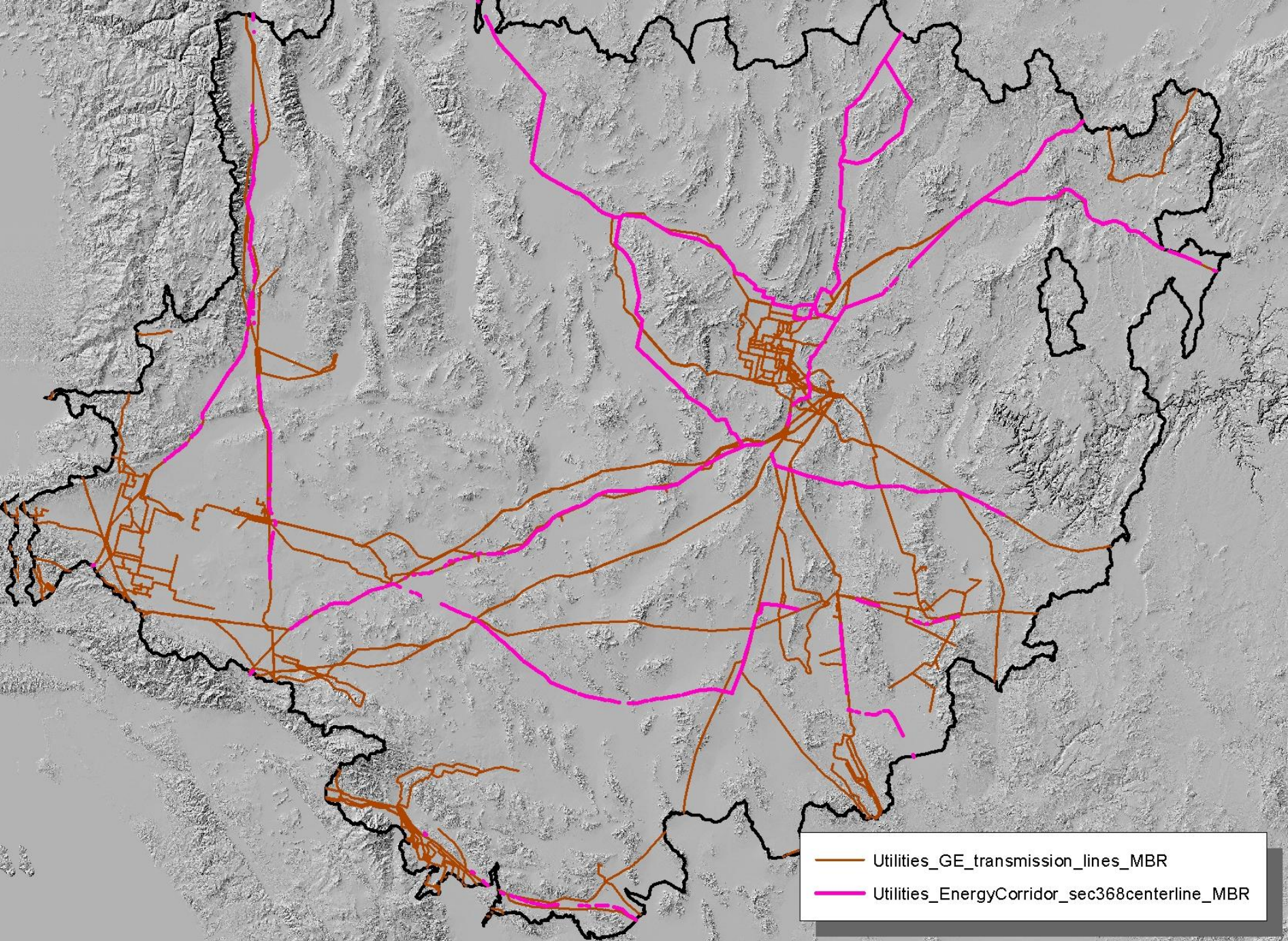
- Renewable Energy Solar
- Renewable Energy Wind
- Renewable Energy Geothermal
- Private undeveloped
- Urban very low density (exurban)
- Urban low density (suburban)
- Urban high density
- Public
- Transmission lines
- Renewable Energy Solar
- Renewable Energy Wind
- Public
- Military Urbanized Area
- Row crops, orchards and irrigated pastures
- Pipelines
- Transmission lines
- Landfills and Refuse Pits
- Oil and Gas Wells
- Mines
- Roads Primary
- Roads Secondary
- Roads Local and Neighborhood
- Roads Unimproved

0 30 60 120 Miles



Development – Urbanization

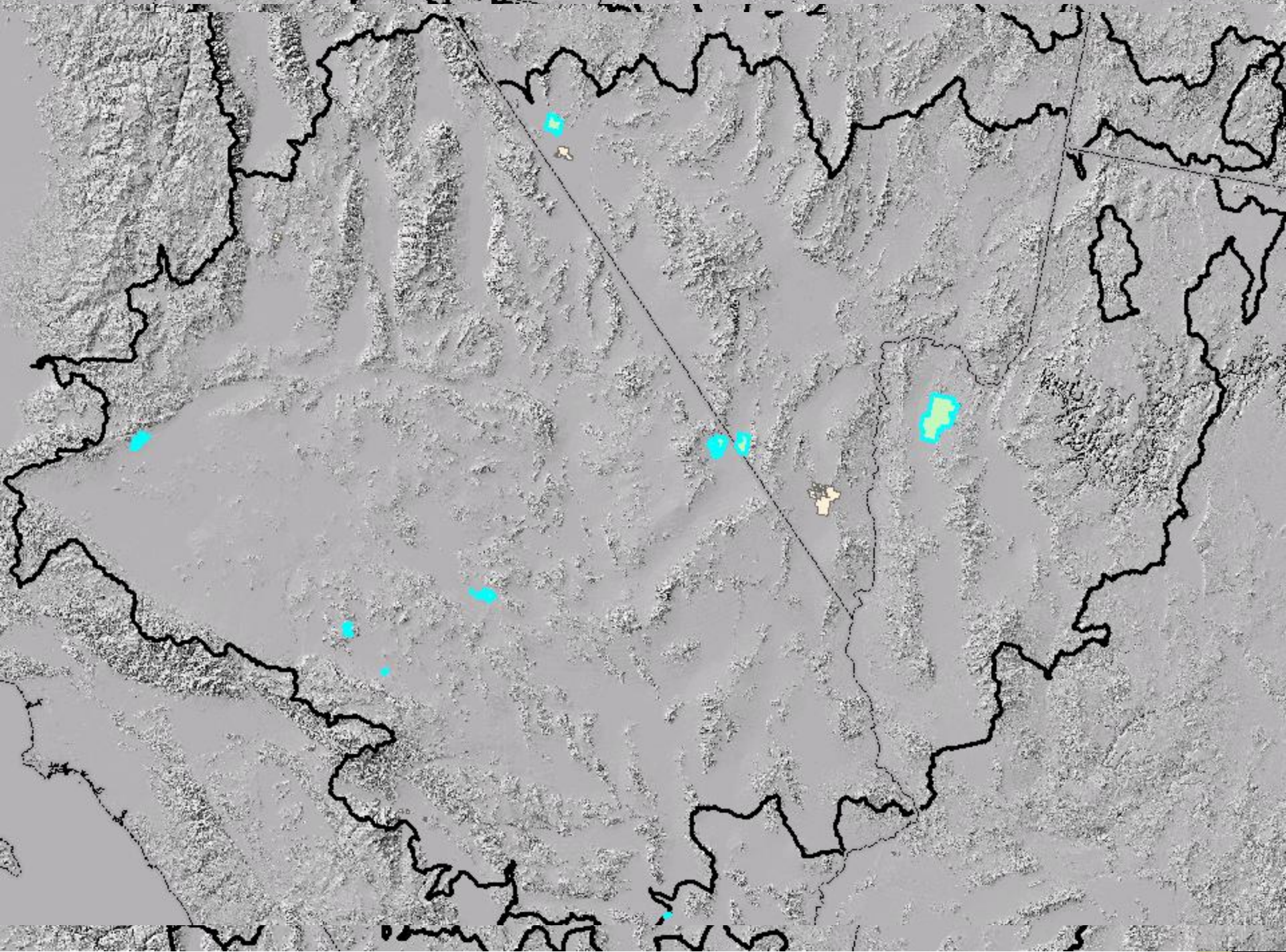




Renewable Energy

- BLM assembled priority projects for 2011-12 from state offices
- Projects in EIS/EA process
- Clarifications
 - Include new SEZ from PEIS as priority projects?
 - Include state priority zones? (RETI, AZ RDEP)

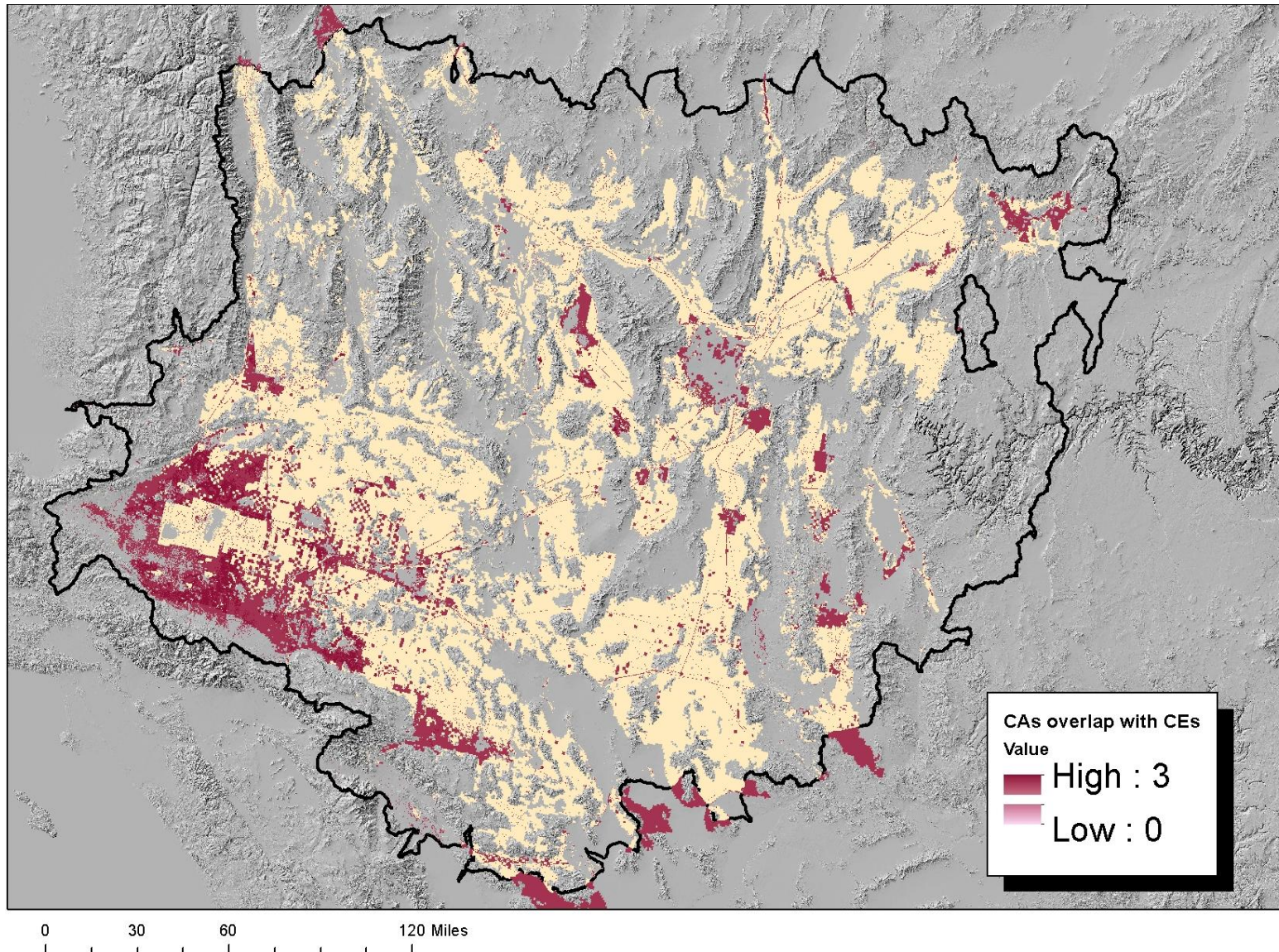




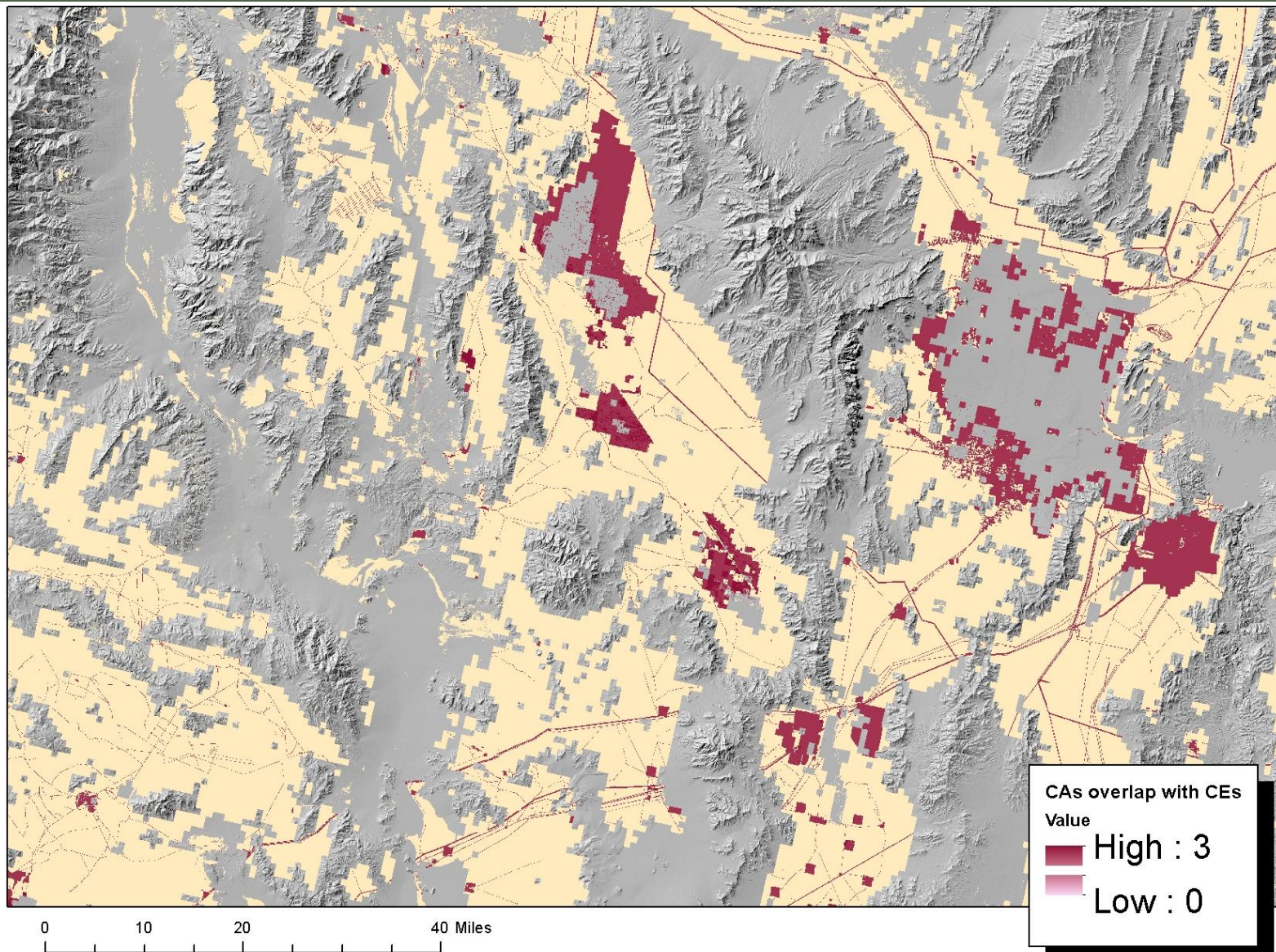
ProjectNam	SerialNumb	Commodity	Scenario	ACRES	Total Acres
Luning Solar	NVN XXXXXX	Wind Energy Facilities	Present	715.7	
Crescent Dunes	NVN XXXXXX	Wind Energy Facilities	Present	2075.5	
Spring Valley Wind	NVN-084148	Wind Energy Facilities	Present	7090.9	
Salt Wells	NVN 077271	Geothermal Energy Facil*	Present	2551.1	
Mammoth PLES1	CACA 011667	Geothermal Energy Facil*	Present	1341.5	
Steamboat Galena Hills	NVN 063124	Geothermal Energy Facil*	Present	501.6	
Brady Ormat	NVN 046566	Geothermal Energy Facil*	Present	120.7	
Desert Peak	NVN 013072A	Geothermal Energy Facil*	Present	640.2	
Brady Ormat	NVN 065561	Geothermal Energy Facil*	Present	362.5	
Dixie Valley	NVN 012862	Geothermal Energy Facil*	Present	1627.9	
Stillwater	NVN 051956	Geothermal Energy Facil*	Present	120.9	
Empire	NVN 042707	Geothermal Energy Facil*	Present	1793.4	
Blue Mountain	NVN 058196	Geothermal Energy Facil*	Present	667.2	
Wabuska	NVN 079988	Geothermal Energy Facil*	Present	1517.2	
Steamboat Galena Hills	NVN 029821	Geothermal Energy Facil*	Present	39.7	
Steamboat Galena Hills	NVN 012085	Geothermal Energy Facil*	Present	501.6	
Desert Peak	NVN 085777	Geothermal Energy Facil*	Present	479.6	
Blue Mountain	NVN 086668	Geothermal Energy Facil*	Present	596.6	
Thermo	UTU 071373	Geothermal Energy Facil*	Present	1786.5	
Roosevelt	UTU 027386	Geothermal Energy Facil*	Present	1171.3	
Dixie Valley	NVN 012863	Geothermal Energy Facil*	Present	1871.1	
Beowawe	NVN 010916	Geothermal Energy Facil*	Present	1330.2	28,902.77
Salt-Wells aka Carson Lake	NVN XXXXXX	Geothermal Energy Facil*	Future	6948.1	
McGuinness Hills	NVN XXXXXX	Geothermal Energy Facil*	Future	7443.6	
New York Canyon	NVN XXXXXX	Geothermal Energy Facil*	Future	15967.6	
Coyote Canyon	NVN XXXXXX	Geothermal Energy Facil*	Future	7159.0	
Salt-Wells	NVN XXXXXX	Geothermal Energy Facil*	Future	15535.8	
Milford Wind Corridor Phase I	UTU-082972	Wind Energy Facilities	Future	3286.6	
Mineral Mountain	UTU-083061	Wind Energy Facilities	Future	4092.0	
Milford Wind Corridor Phase II	UTU-083073	Wind Energy Facilities	Future	4224.8	
Milford Wind Corridor Phase II SA	UTU-08307301	Wind Energy Facilities	Future	80.8	
Milford Wind Corridor Phase IV	UTU-088017	Wind Energy Facilities	Future	29498.6	94,236.78

ProjectNam	SerialNumb	Commodity	SCENARIO	ACRES	Total Acres
Chevron Energy Solutions - Lucerne Valley	CACA 049561	Solar Energy Facilities	Present	461.1	
Solar Partners I - Ivanpah 2	CACA 048668	Solar Energy Facilities	Present	3479.4	
Calico Solar, LLC - Calico	CACA 049537	Solar Energy Facilities	Present	4604.4	
Silver State Solar (combined South and North proj*	NVN-085077	Solar Energy Facilities	Present	7850.9	
Amargosa Farm Road, Amargosa Valley, Nye County	NVN-084359	Solar Energy Facilities	Present	6279.7	
BP-Edom Hills Project	CACA 014632	Wind Energy Facilities	Present	364.7	
Mark Technologies Corp. - Mesa	CACA 041695	Wind Energy Facilities	Present	277.3	
Oak Creek Energy - Tehachapi	CACA 013528	Wind Energy Facilities	Present	159.5	
PAMC Management Corp. - Alta Mesa	CACA 011688A	Wind Energy Facilities	Present	874.2	
FPL Energy - Cabazon Wind	CACA 013198	Wind Energy Facilities	Present	210.2	
Desert Wind Energy	CACA 015549	Wind Energy Facilities	Present	79.1	
Energy Unlimited Inc. - Eastridge	CACA 017192	Wind Energy Facilities	Present	77.4	
DIF Wind Farms V	CACA 037869	Wind Energy Facilities	Present	39.3	
DIFCO - Whitewater Floodplain	CACA 015562	Wind Energy Facilities	Present	962.5	
Cameron Ridge, LLC	CACA 009501	Wind Energy Facilities	Present	545.3	
San Gorgonio Farms - Whitewater Hill	CACA 009755	Wind Energy Facilities	Present	13.4	
Searchlight Wind Energy, Searchlight, Nevada	NVN-084626	Wind Energy Facilities	Present	24049.1	
Navy BLM China Lake	CACA 011402	Geothermal Energy Facil*	Present	2569.6	
Navy BLM China Lake	CACA 011402	Geothermal Energy Facil*	Present	2569.6	
Navy BLM China Lake	CACA 022512	Geothermal Energy Facil*	Present	40.7	
Navy BLM China Lake	CACA 025690	Geothermal Energy Facil*	Present	631.5	56,138.9
Silver-State Solar (combined South and North proj*	NVN xxxxxx	Solar Energy Facilities	Future	8373.7	
Amargosa-North, Big Dune Area, Nye County	NVN xxxxxx	Solar Energy Facilities	Future	9562.6	
Granite Wind LLC - Granite Mountains	CACA 048254	Wind Energy Facilities	Future	2085.0	
Palen Solar I, LLC - Palen	CACA 048810	Solar Energy Facilities	Future	360.5	
Alta Wind 1 - Golden Square	CACA 051335	Wind Energy Facilities	Future	554.1	
Rising Tree Wind Farm, LLC	CACA 052362	Wind Energy Facilities	Future	536.1	
First Solar - Stateline	CACA 048669	Solar Energy Facilities	Future	6096.8	
Chevron Energy Solutions - Lucerne Valley	CACA 049561	Solar Energy Facilities	Future	460.8	
Alta Windpower Development, LLC - Alta East	CACA 052537	Wind Energy Facilities	Future	2082.9	
Solar Partners I - Ivanpah 2	CACA 048668	Solar Energy Facilities	Future	3473.7	
Calico Solar, LLC - Calico	CACA 049537	Solar Energy Facilities	Future	4600.2	
Mohave County Wind Farm	AZA32315	Wind Energy Facilities	Future	49057.2	87,243.51

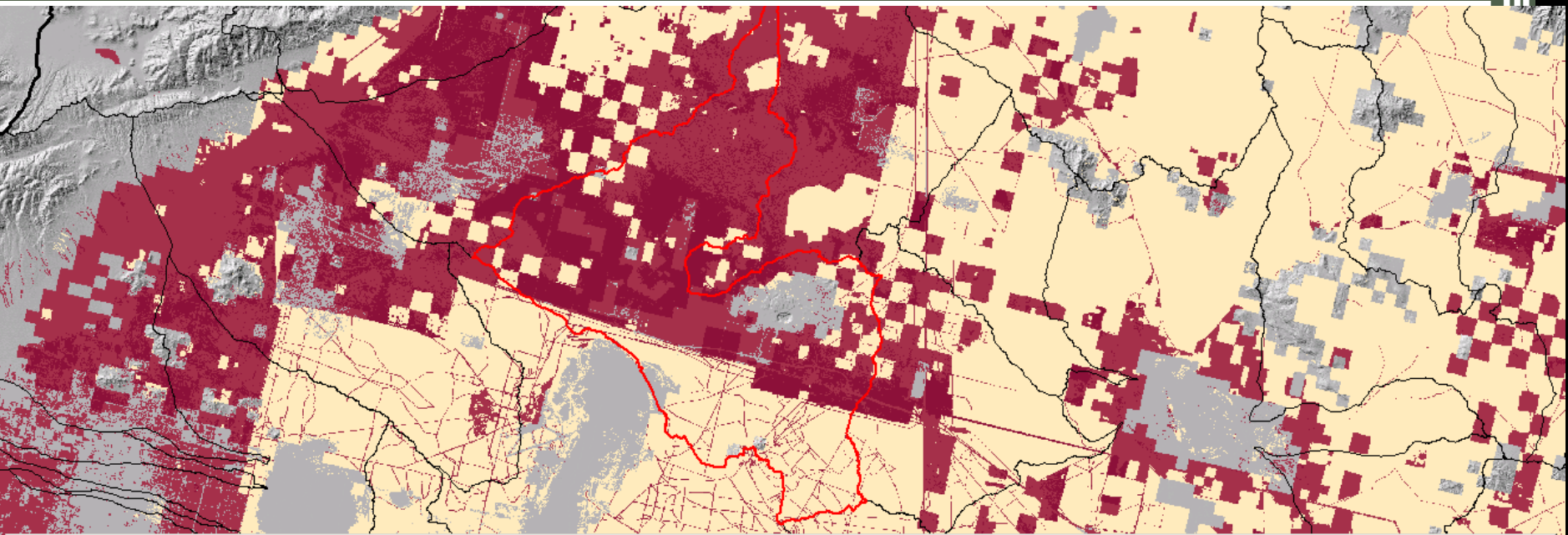
Footprint Assessment



Footprint Assessment



Footprint Assessment



Site Explorer

Test Elements
Scenario Evaluation
Site Layer PLIV_MBR_huc10_watersheds

Selection Attributes
FID: 156
FID: 157
FID: 158

Options ... Help
Report
Less <<

Element Name	Total	Selection	Compatible Area	% Compat	Selection Compat	Response
Sonoran Mojave Salt Desert Scrub	406,642 occ's; 2,250,909.32	54,924 occ's; 443,607.78 ac.		73.8% occ's; 65.4%	29,224 occ's; 225,234.9 ac.	(None)
North American Warm Desert Riparian Shrub	22,926 occ's; 107,201.38 ac.	401 occ's; 1,442.76 ac.		76.8% occ's; 76.2%	191 occ's; 335.28 ac.	(None)
Desert Tortoise	667 occ's; 13,681,304.78 ac.	5 occ's; 929,887.86 ac.		97.3% occ's; 80.4%	3 occ's; 506,974.16 ac.	(None)

Scenario Composition

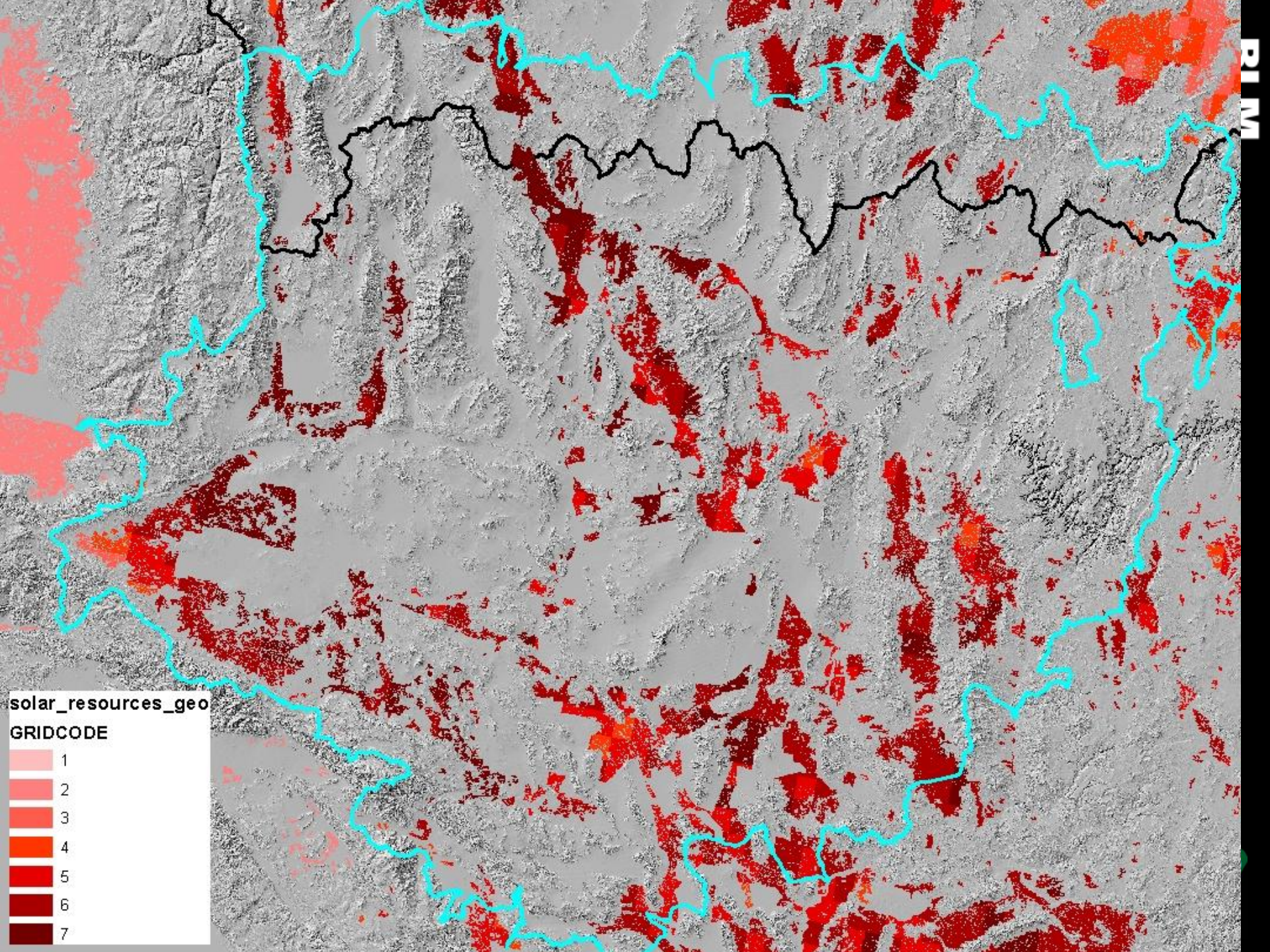
Component	Area	Land Use
Pipe_buf_MBR2	5380.98 acres	Pipelines
landfills_improved_	29.92 acres	Landfills and Refuse Pits
MBR_renewables_	300.52 acres	Renewable Energy Wind
urb_10_mbr	68293.72 acres	Private undeveloped
urb_10_mbr	474088.78 acres	Urban very low density (exurban)
urb_10_mbr	22711.26 acres	Urban low density (suburban)
urb_10_mbr	3921.5 acres	Urban high density

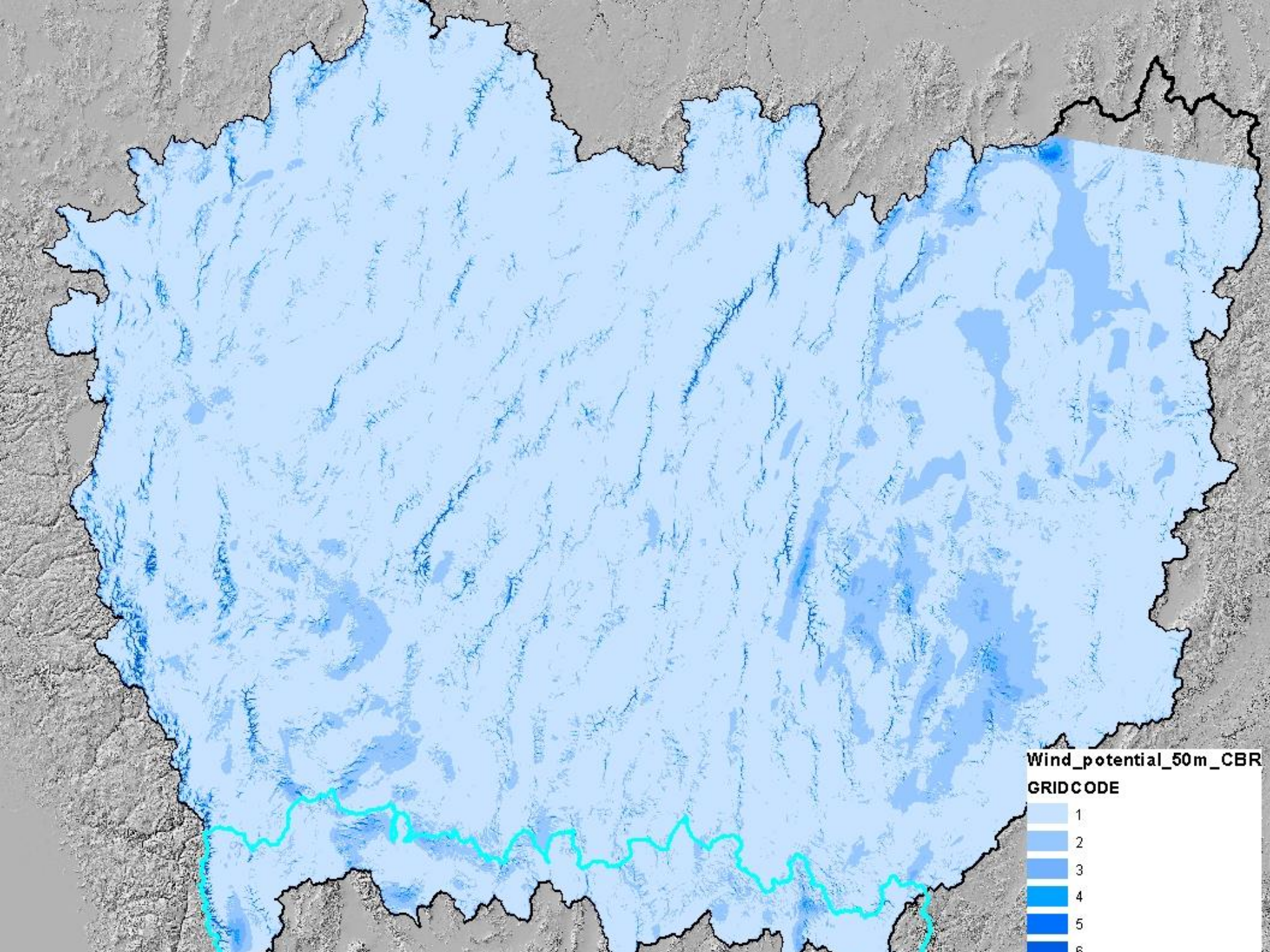
Override <None>

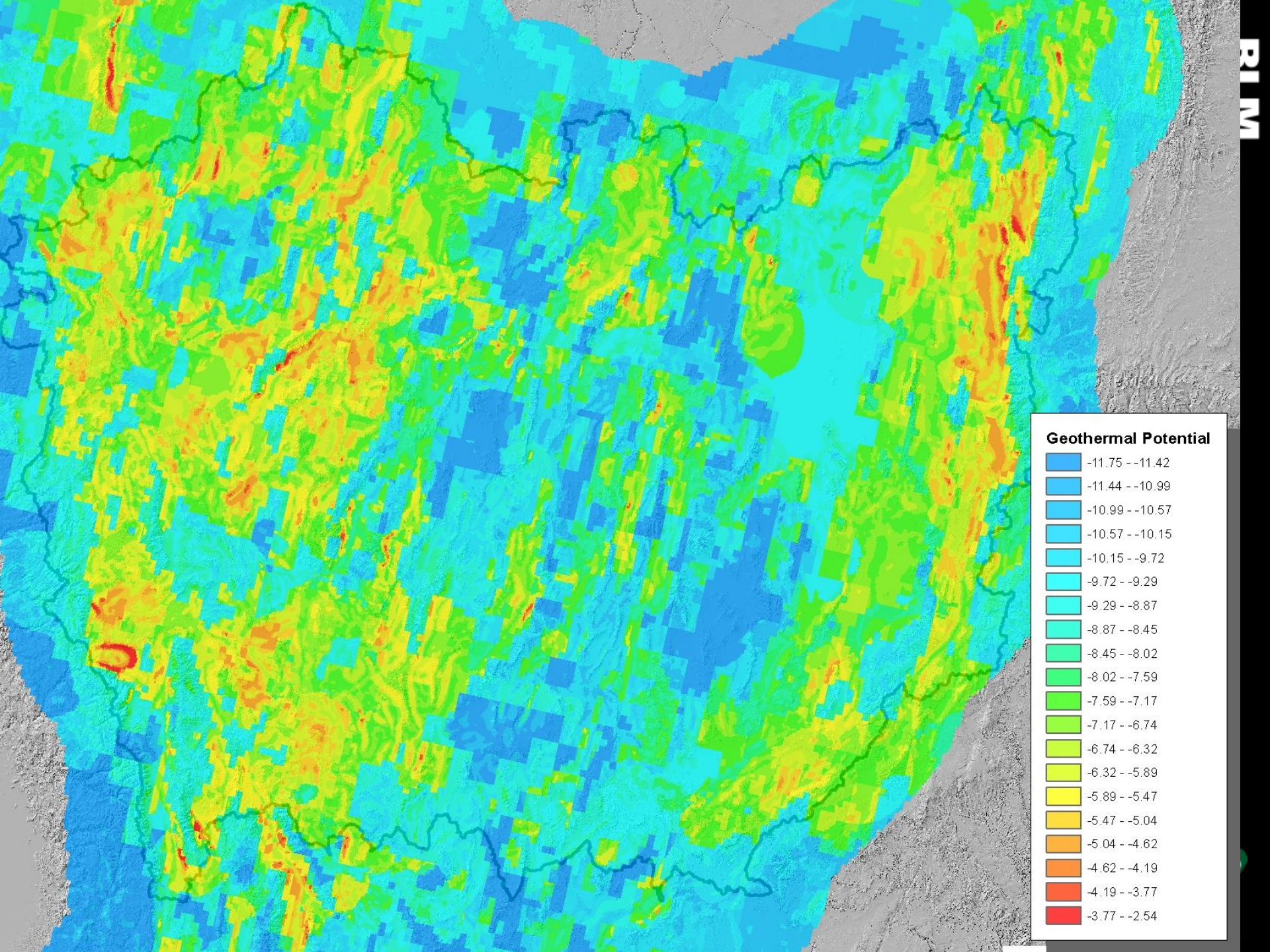
Apply
Undo
Review...
Save...

Renewable Energy Potential

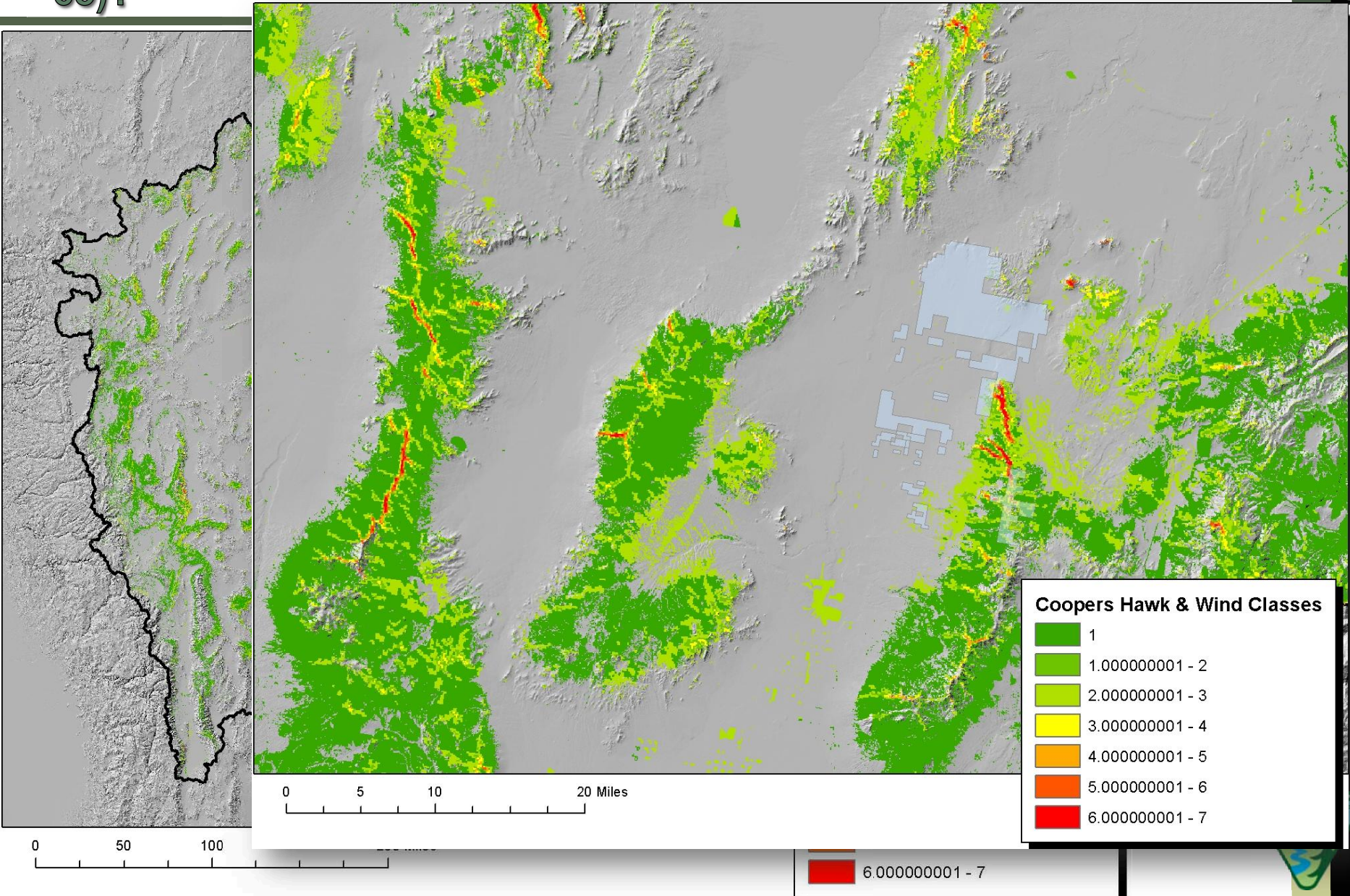
- Where are the areas identified by NREL as potential locations for renewable energy development?
- Where do current locations of CEs overlap with areas of potential future locations of renewable energy development (MQ 65)?
- Where are the areas of low renewable and non-renewable energy development that could potentially mitigate impacts to CEs from potential energy development?
- Not tied to a fixed time scenario





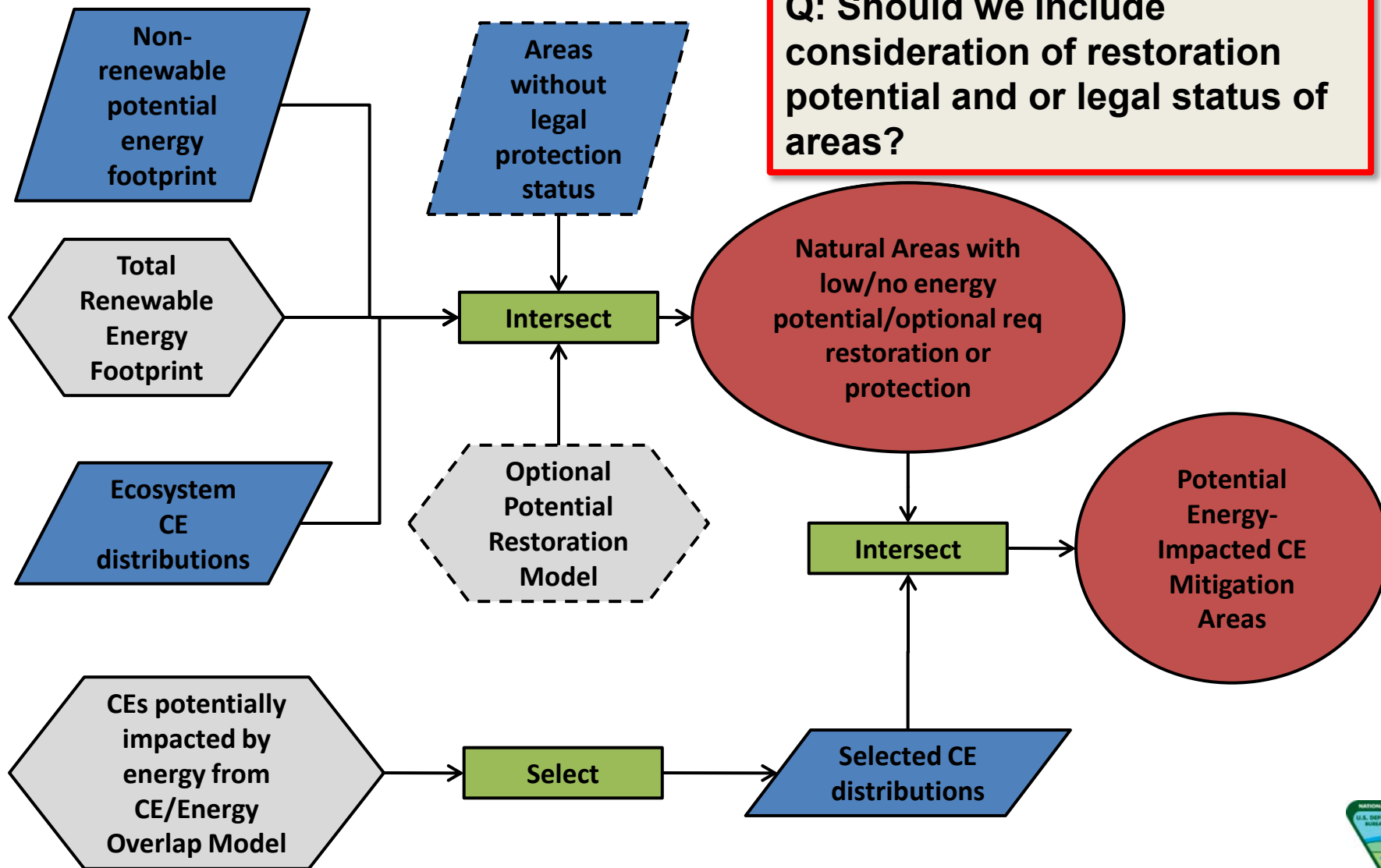


Where do current locations of CEs overlap with areas of potential future locations of renewable energy development (MQ 65)?

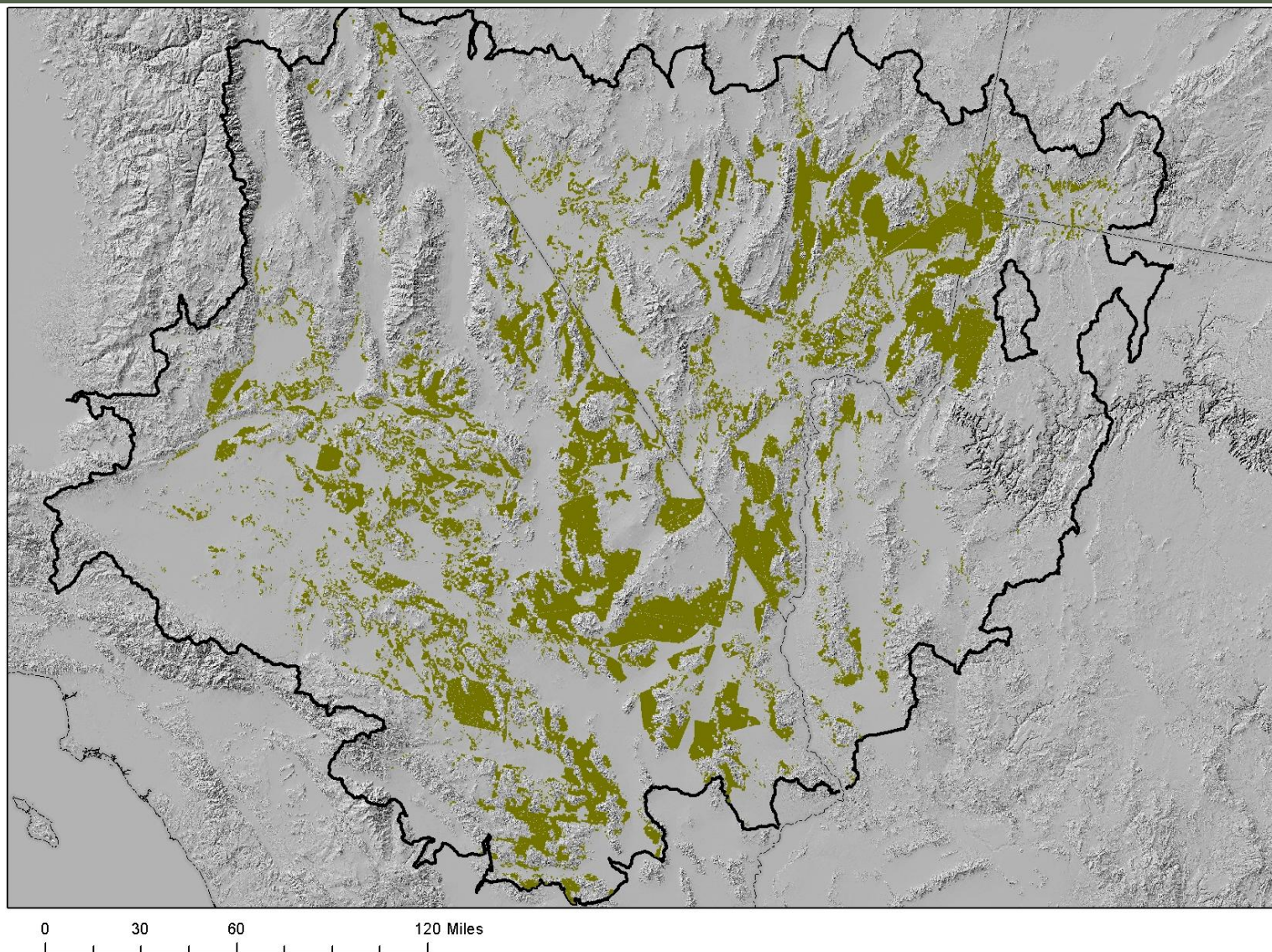


Where are the areas of low renewable and non-renewable energy development that could potentially mitigate impacts to CEs from potential energy development?

Q: Should we include consideration of restoration potential and or legal status of areas?



Where are the areas of low renewable and non-renewable energy development that could potentially mitigate impacts to CEs from potential energy development?



Recreation Change Agent

Management questions

- Where are ecological areas with significant recreational use?

Enabling our answering MQs like....

- How much desert tortoise habitat is in areas of high recreation use?
 - Units in area
 - Overlap of recreation use (in people or vehicles per year)



Data changes/additions

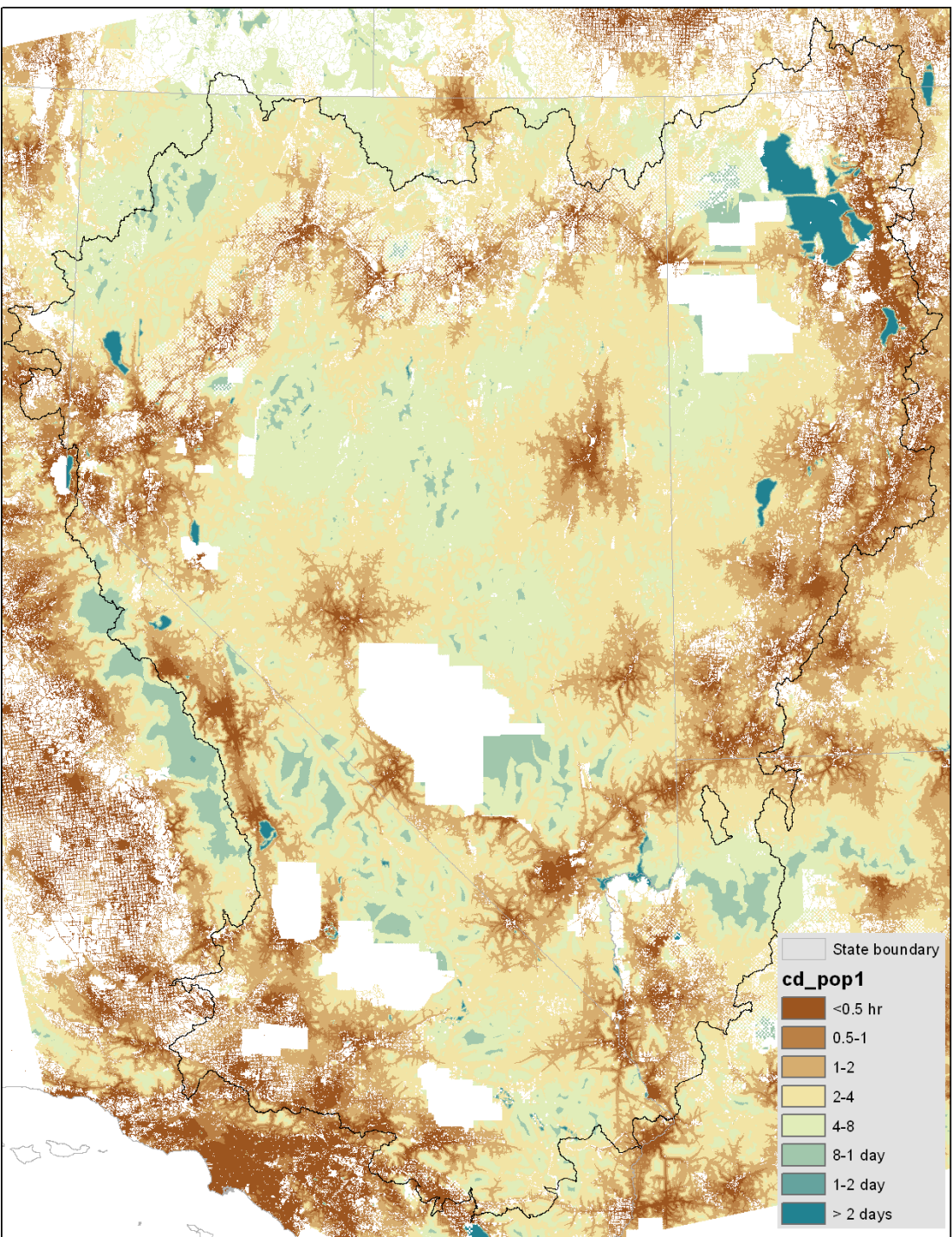
- Exclusion
 - PAD-US assigned:
 - Private, no public access
 - Recreation uses, motorized very likely
 - Wilderness, motorized precluded
 - Natural areas, motorized likely excluded
 - DOD, military, DOE, prison – all recreation excluded
 - Fishing access
 - Public access on interstates and highways is assumed
- Special Resource Management Areas
 - No designation about OHV or not, not used
 - DeAnza historic trail.... not used
- Recreation sites/settings
 - Campsite, picnic, day use area → “gate”
 - Boat launch, dock → “gate” for aquatic
 - LTVA, Recreation Camping Area → gate
- Features
 - Abandoned mine: dded (roads??/accessibility)? Attractions for rock-hounders
 - GNIS features (arch, cliff, falls, mine, spring, summit)
- OHV races
 - Found many sites with information, very few maps (and courses change), no readily-available GIS data, not incorporated
- Projections
 - From state demographers office,
 - Place population in 2000 was multiplied times the county growth rate (pop2030/pop2000)*

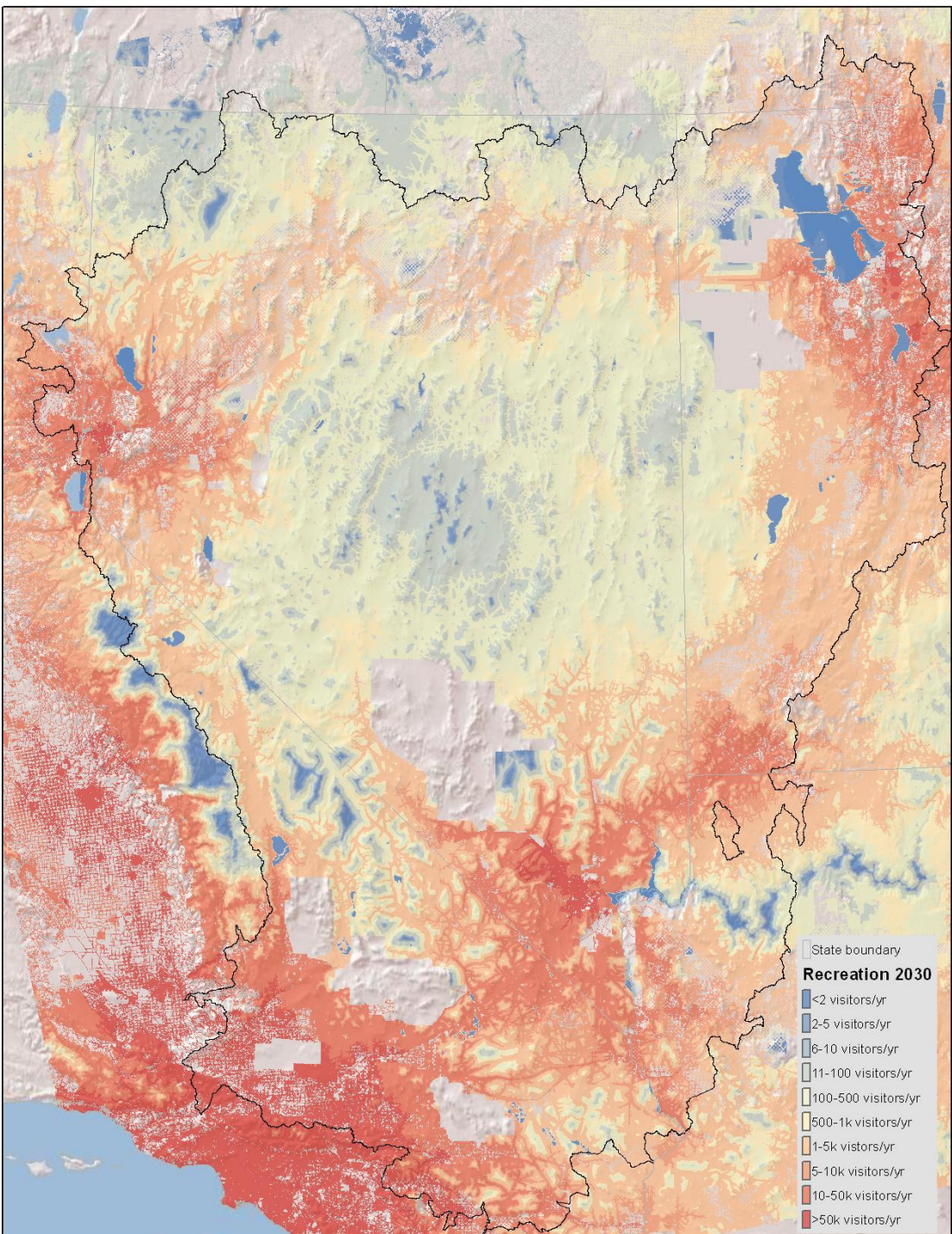


Recreation models

Type	Constraints	"Gates"	Destinations
R - general	Public lands but not DOD/DOE	None	None
Ra - Boater/fisher *assume 10 mph boat speed	Reservoirs, rivers, Non-wilderness, non-DOD	Marinas, boat ramps	Beaches, fishing holes, camping spots
Re - OHV enthusiast *assume no highway travel	Public, non- wilderness, non-DOD	OHV staging areas, trail heads	Potentially: race courses, ravines, washes
Rf – Hiker, cyclist	Public, non-DOD	Trail heads, campgrounds, RCAs/LTVAs	Springs, slot canyons, peaks, arches
Rr - OHV hunter/rock hounder	Public, non- wilderness, non-DOD	OHV trail heads, campgrounds, RCAs/LTVAs	Caves, mines, ruins



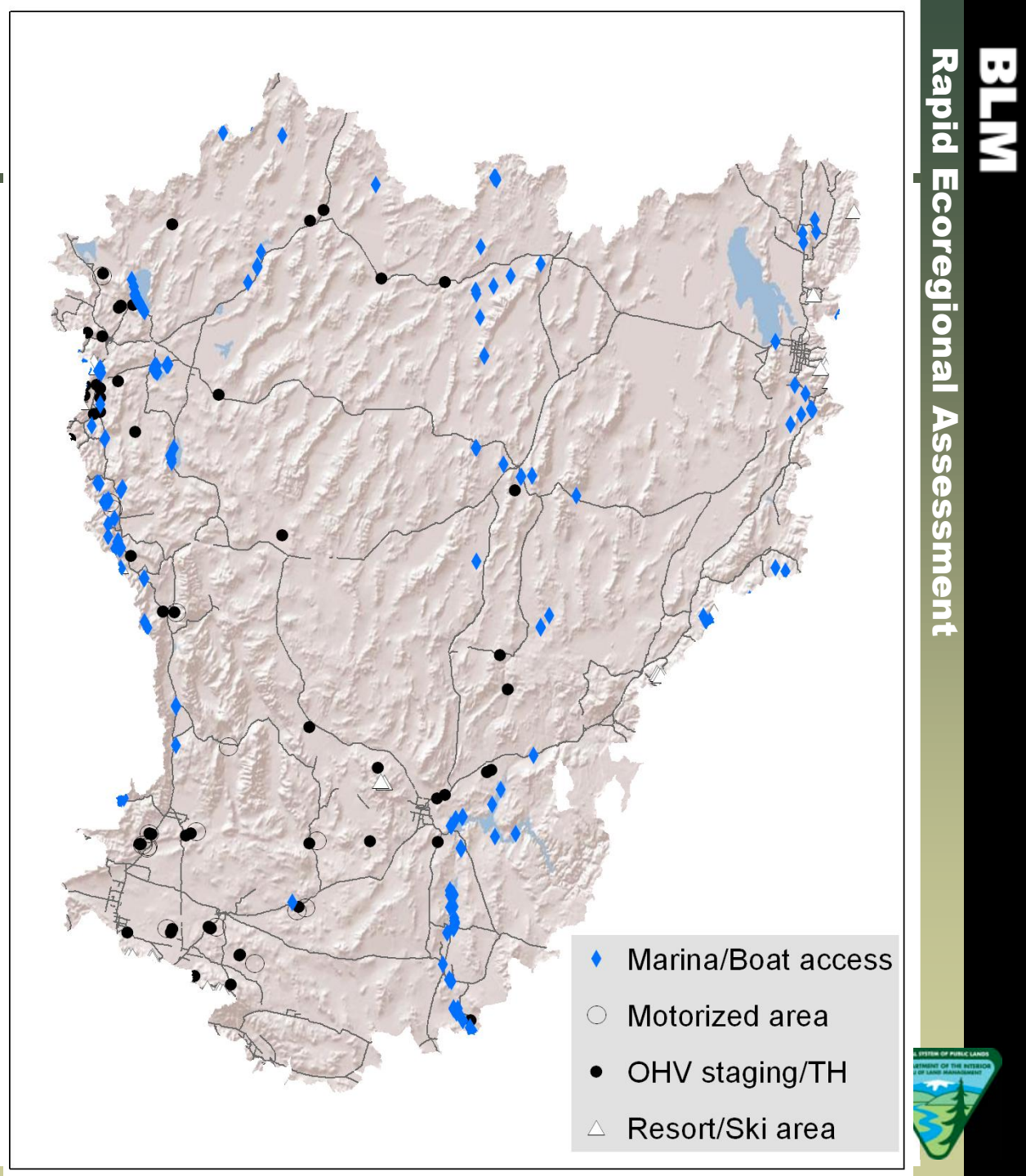




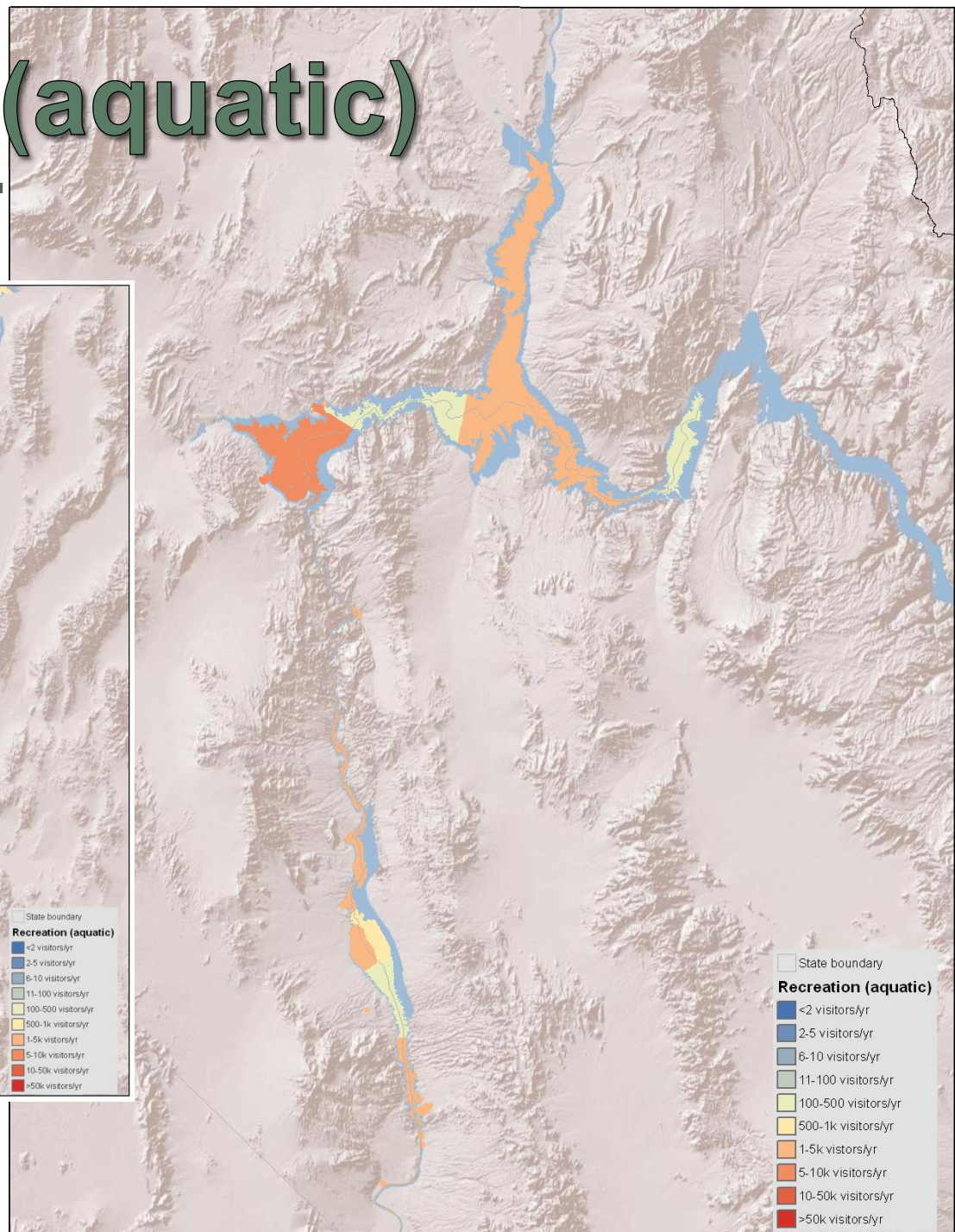
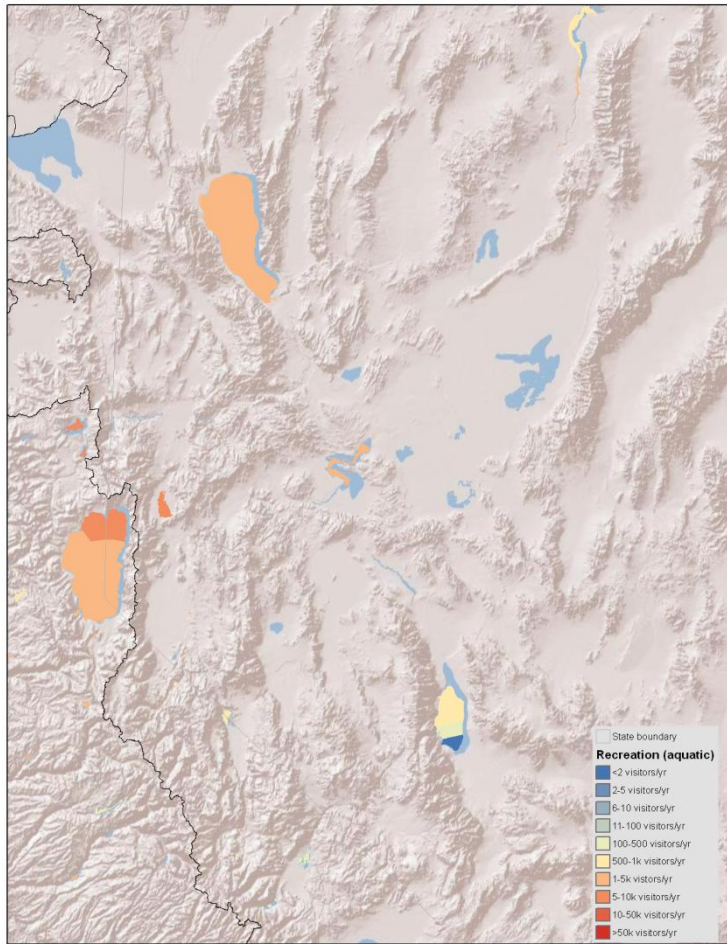
“Gates”

~100 OHV

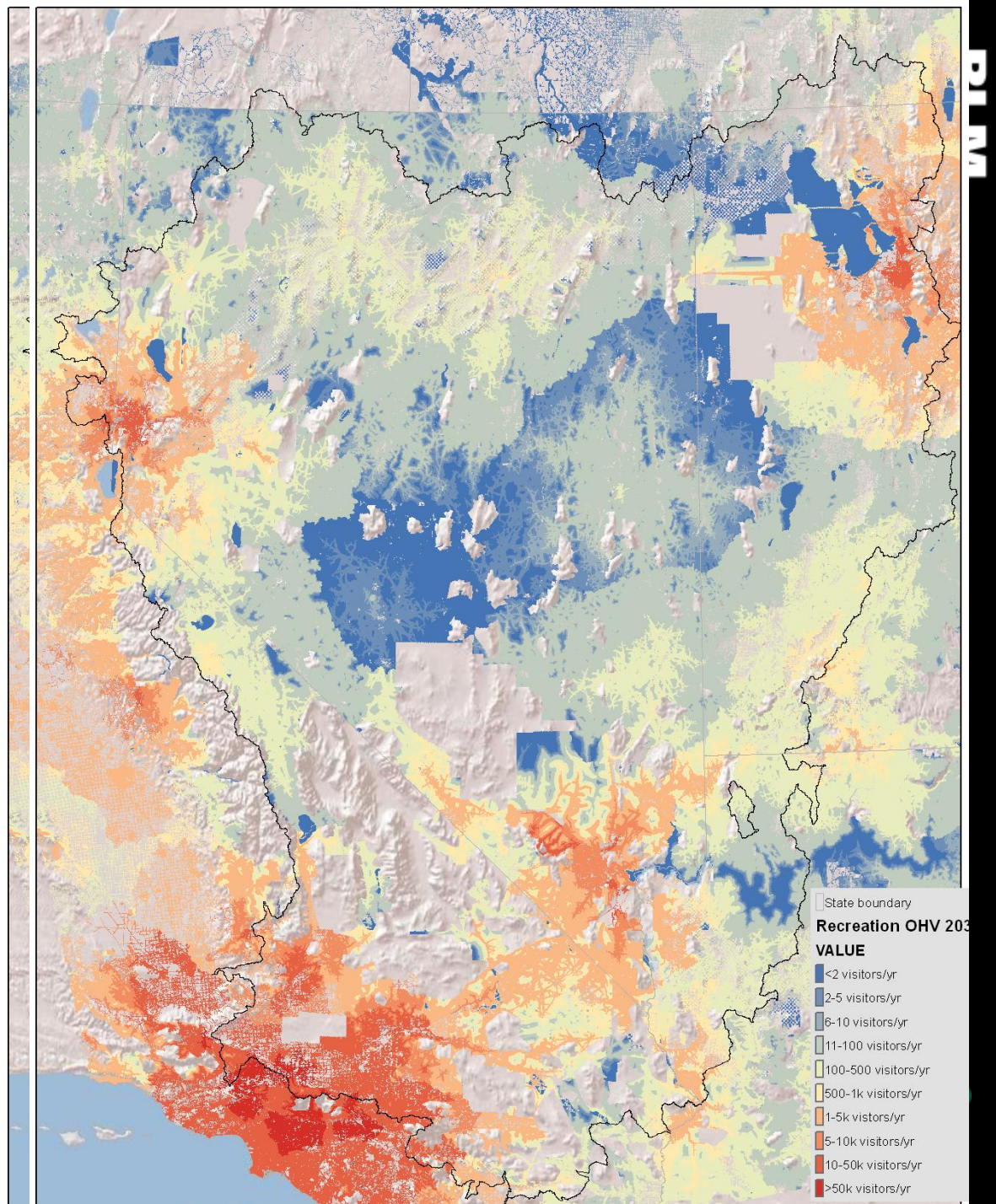
~150 aquatic



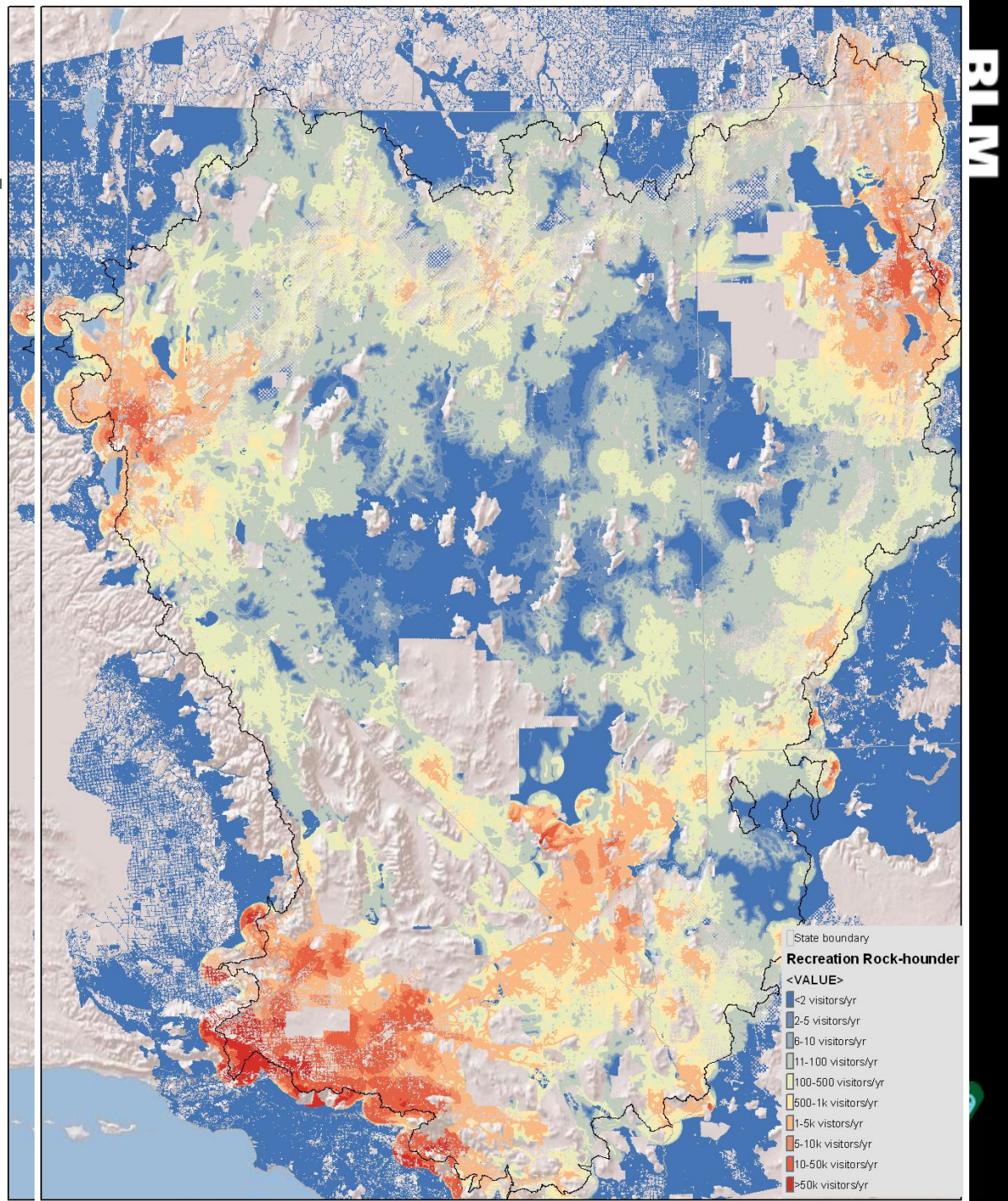
Model: Ra (aquatic)



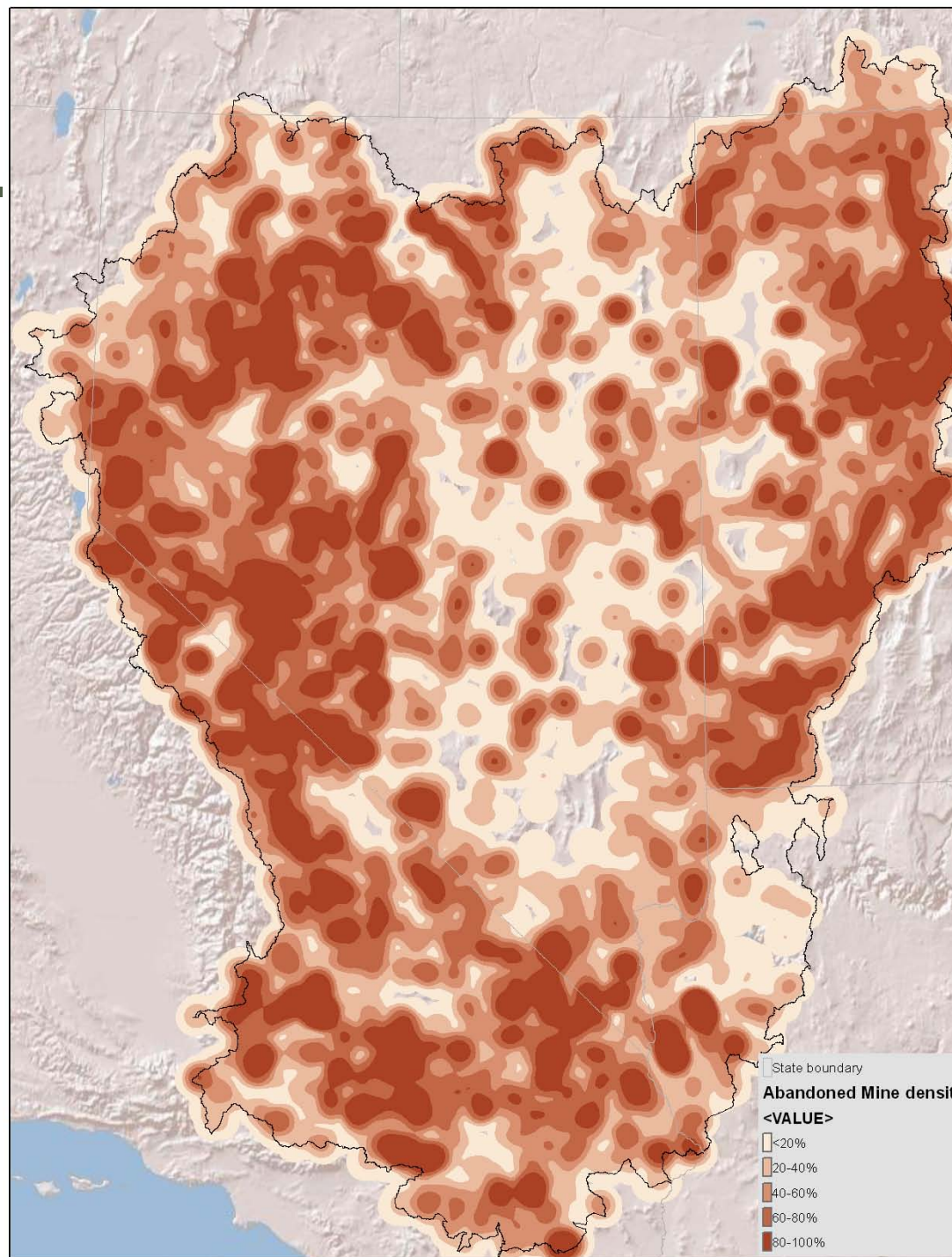
Model: Re (OHV enthusiast)

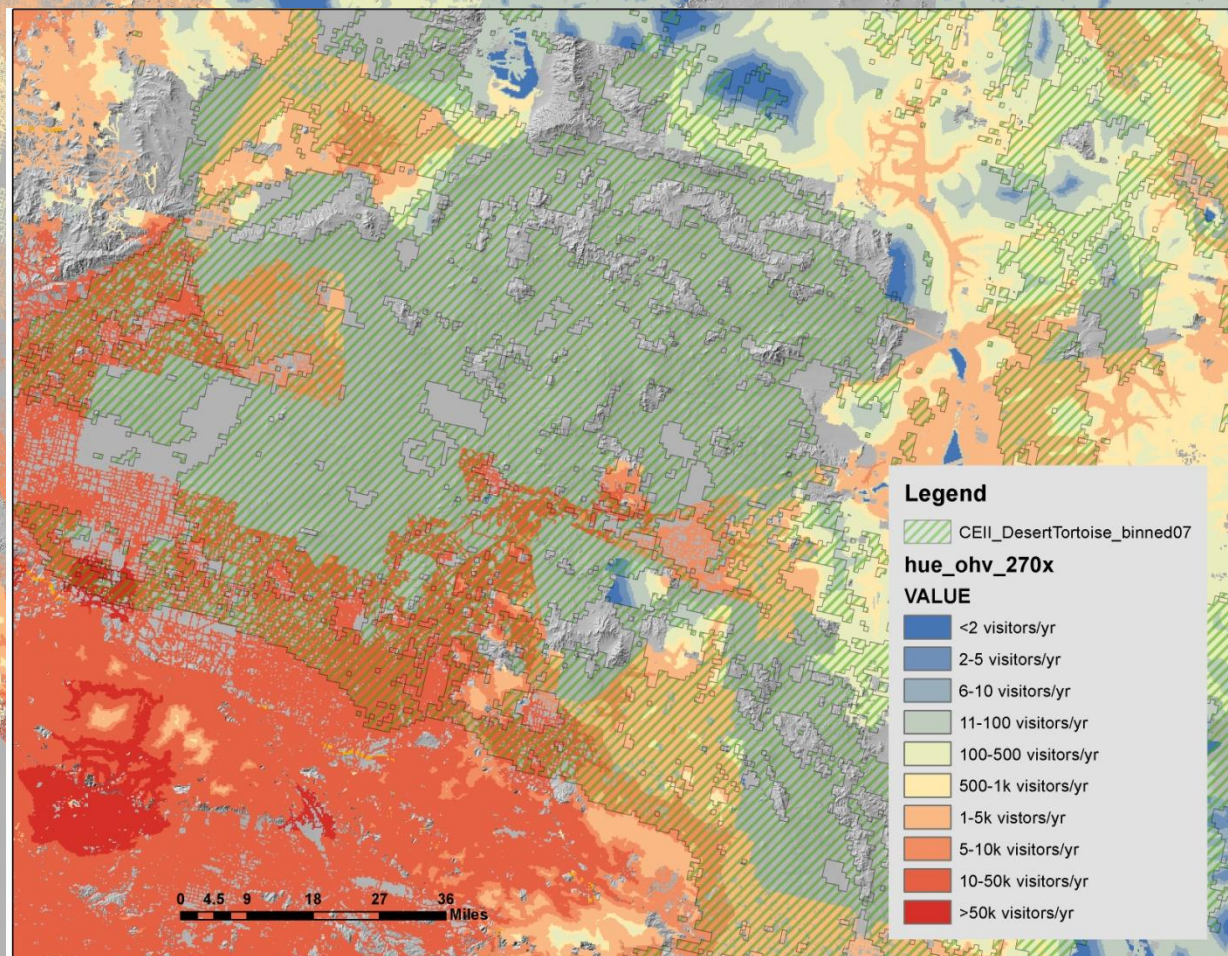


Model: Re OHV Hunter/Rock Hound



Abandoned mine Density



**Legend**

CEII_DesertTortoise_binned07

hue_ohv_270x

VALUE

- <2 visitors/yr
- 2-5 visitors/yr
- 6-10 visitors/yr
- 11-100 visitors/yr
- 100-500 visitors/yr
- 500-1k visitors/yr
- 1-5k visitors/yr
- 5-10k visitors/yr
- 10-50k visitors/yr
- >50k visitors/yr

0 12.5 25 50 75 100 Miles

Back to: Management questions

MQs

- Where are ecological areas with significant recreational use?
- Significance varies by CE
- Generalize to use levels/classes
- Reporting Units?



Class II Development – Recreation: *output*

- Model output will be calibrated to visitation estimates for concentrated areas (where data available) and by review by BLM recreation specialists



Clarifications

- How to deal with broad differences in precision in future/potential CA maps vs refined zones or footprints
- Do renewable energies affect all CEs or just a subset of particular concern?

CE Status Scorecard

Indicator	Justification	Rating			Index Score
		Sustainable	Transitioning	Degraded	
Rank Factor: LANDSCAPE CONTEXT					
Key Ecological Attribute: <i>Landscape Condition</i>					
Landscape Condition Model Index	Land use impacts vary in their intensity, affecting ecological dynamics that support ecological systems.	Cumulative level of impacts is sustainable. Landscape Condition Model Index is > 0.8	Cumulative level of impacts is transitioning system between a sustainable and degraded state. Landscape Condition Model Index is 0.8 – 0.5	Cumulative level of impacts has degraded system. Landscape Condition Model Index is< 0.5	0.0 – 1.0
Key Ecological Attribute: <i>Landscape Connectivity</i>					
Landscape Connectivity Index	Intact natural conditions support physical and biological dynamics occurring across diverse environmental conditions	Connectivity is moderate to high and adequate to sustain most CEs. Connectivity index is >0.6	Connectivity is moderate to low and will not some sustain CEs. Connectivity index is 0.6-0.2	Connectivity is low and will not sustain many CEs. Connectivity index is <0.2	0.0 – 1.0
Rank Factor: CONDITION					
Key Ecological Attribute: <i>Species Composition</i>					
Invasive Plants Index	Invasive annual vegetation displaces natural composition and provides fine fuels that significantly increase spread of catastrophic fire.	System is sustainable with low cover of invasive annual vegetation. Mean cover of annuals is <5%. Invasive Annual Cover Index is >0.8.	System is transitioning to degraded state by abundant invasive annual vegetation. Mean cover of annuals is 5-10%. Invasive Annual Cover Index is 0.8-0.5.	System is degraded by abundant invasive annual vegetation. Mean cover of annuals is >15%. Invasive Annual Cover Index is <0.5)	0.0 – 1.0
Key Ecological Attribute: <i>Fire Regime</i>					
Fire Regime Departure	Mixed of age classes among patches of the system is result of disturbance regime. Departure from mixture predicted under NRV indicates uncharacteristic disturbance regime and declining integrity.	Mixed of age classes indicate system is functioning inside or near NRV. System is in a sustainable state. Departure is < 20%. SCLASS Departure Index is > 0.8	Mixed of age classes indicate system is functioning near, but outside NRV. System is transitioning to degraded state. Departure is 20 -50%. SCLASS Departure Index is 0.8 – 0.5	Mixed of age classes indicate system is functioning well outside NRV. System is degraded. Departure is > 50%. SCLASS Departure Index is < 0.5	0.0 – 1.0
Rank Factor: Relative Extent					
Key Ecological Attribute: <i>Extent</i>					
Change in Extent	Indicates the proportion lost due to conversion to other land cover or land use, decreasing provision of ecological services provided previously.	Site is at or minimally is only modestly changed from its original natural extent (<20% change) Change in Extent Index is > 0.8.	Occurrence is substantially changed from its original natural extent (20-50% change). Change in Extent Index is 0.8-0.5	Occurrence is severely changed from its original natural extent (>50% change). Change in Extent Index is < 0.5.	0.0 – 1.0
Overall Ecological Integrity Rank					
Mean Index Score					0.0 – 1.0



Break



Climate Space Trends analysis (how is climate changing?)



Climate Change Impacts Assessment

Where will changes in climate be greatest relative to normal climate variability?

Where will CEs experience climate outside their current climate envelope?

Where will current locations of CEs experience significant and abrupt deviations from normal climate variation?

Which native plant communities will experience climate outside their normal range?

Where will wildlife habitat experience climate outside its normal range?

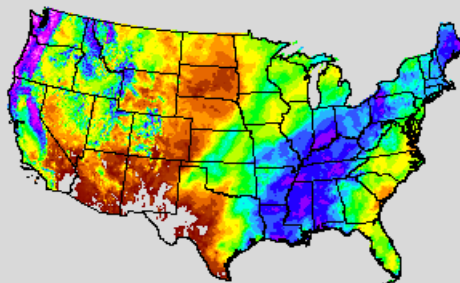
What is the spatial distribution of projected range shifts for CEs?



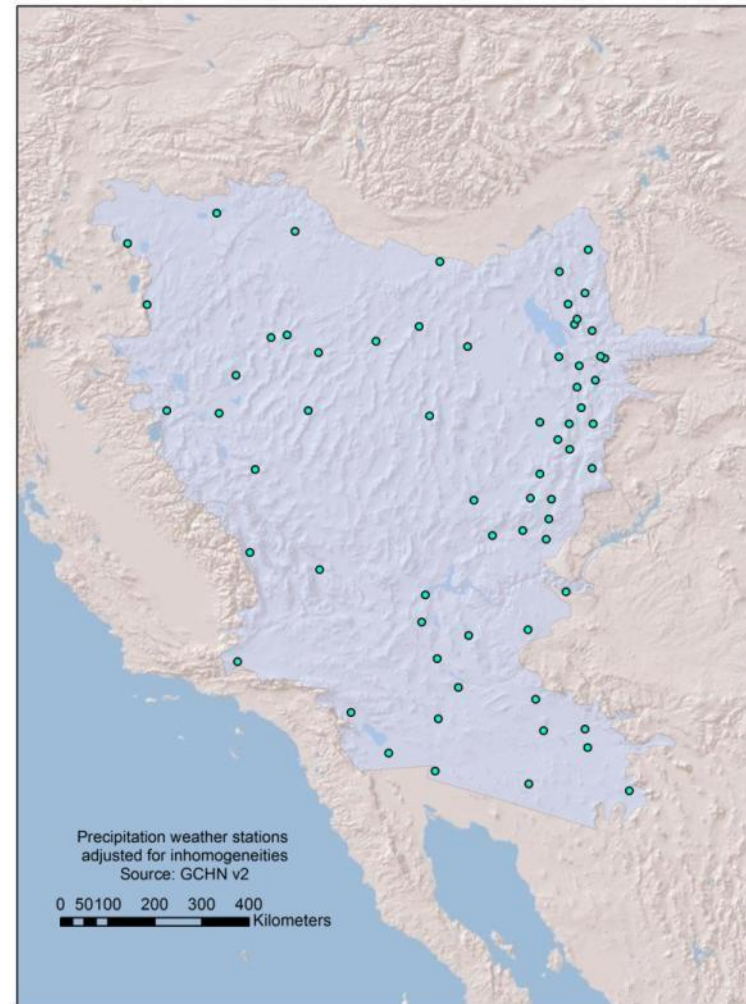
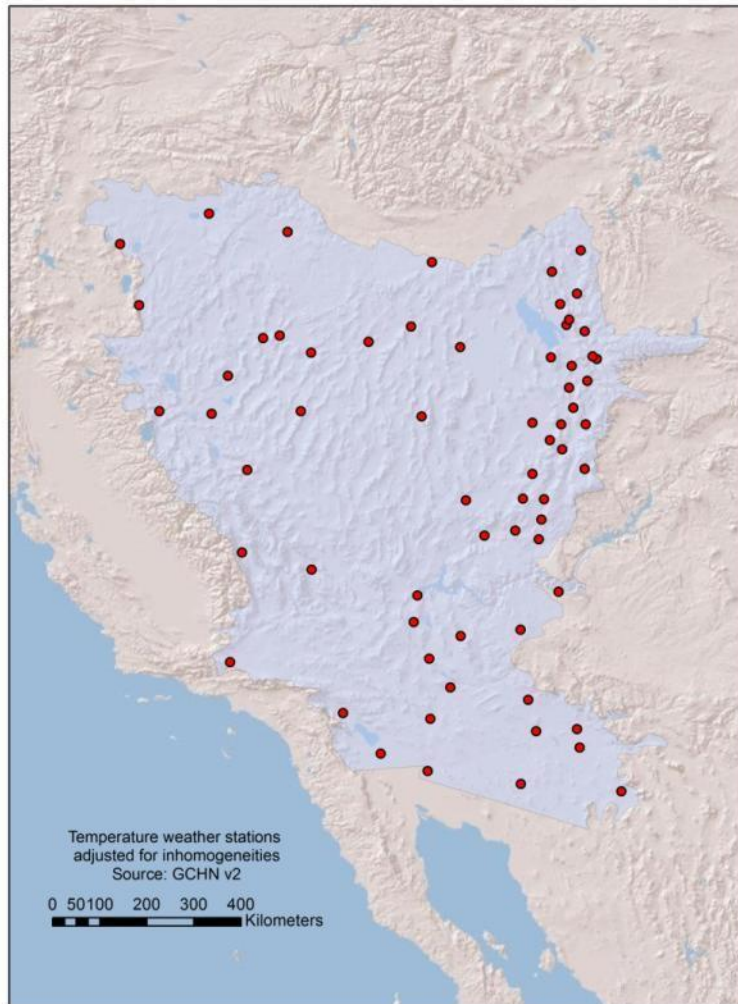
Spatial Climate Datasets - Observations

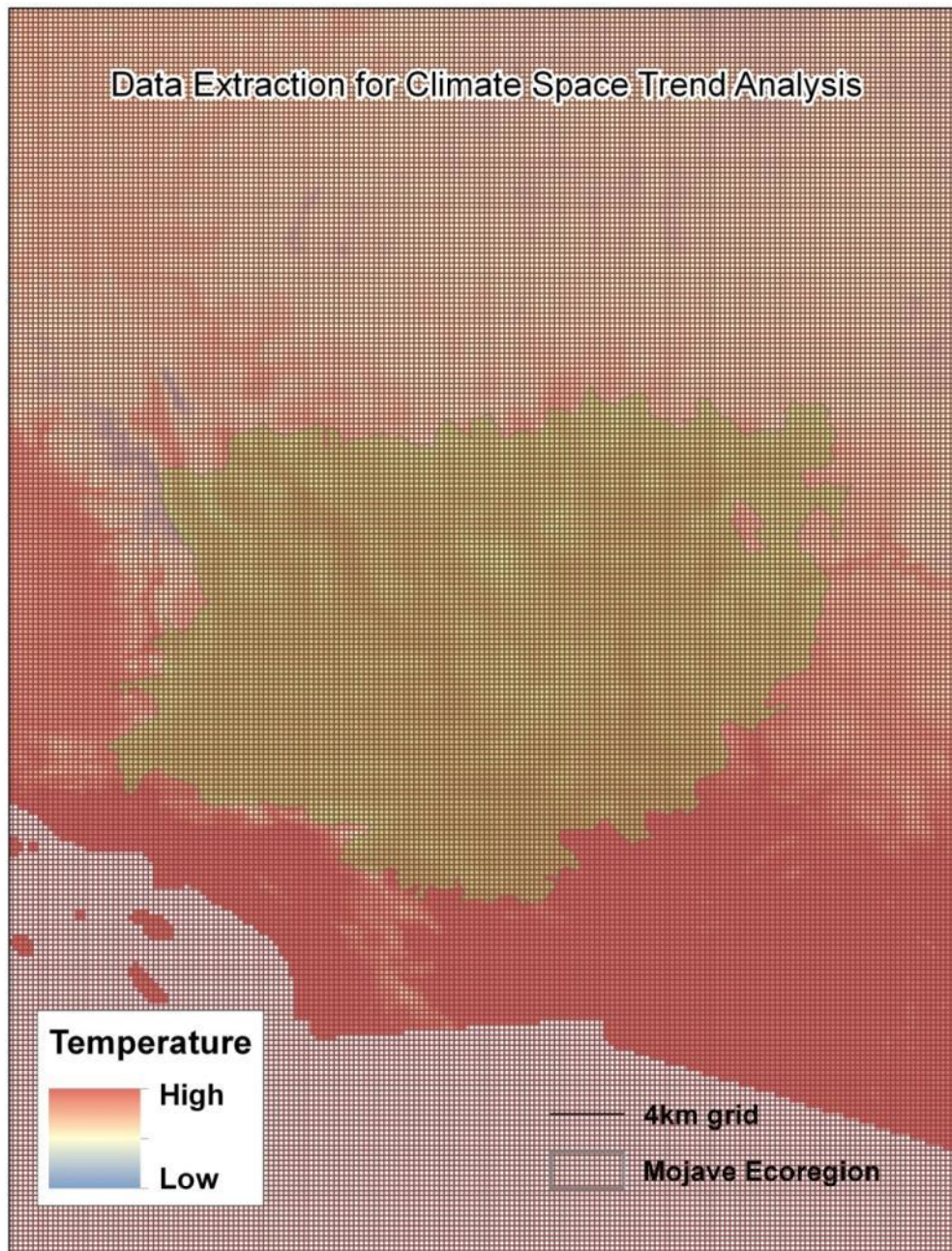


- Current climate
- Method: Parameter-elevation Regressions on Independent Slopes Model (Daly et al 2002)
- Yearly: 1895-Present
- Variables: Precipitation, Max Temp, Min Temp, Dewpoint, PPT % anomaly
- Spatial resolution: **4 km²**, 2km² & 800 m



Spatial Climate Data (Observations)



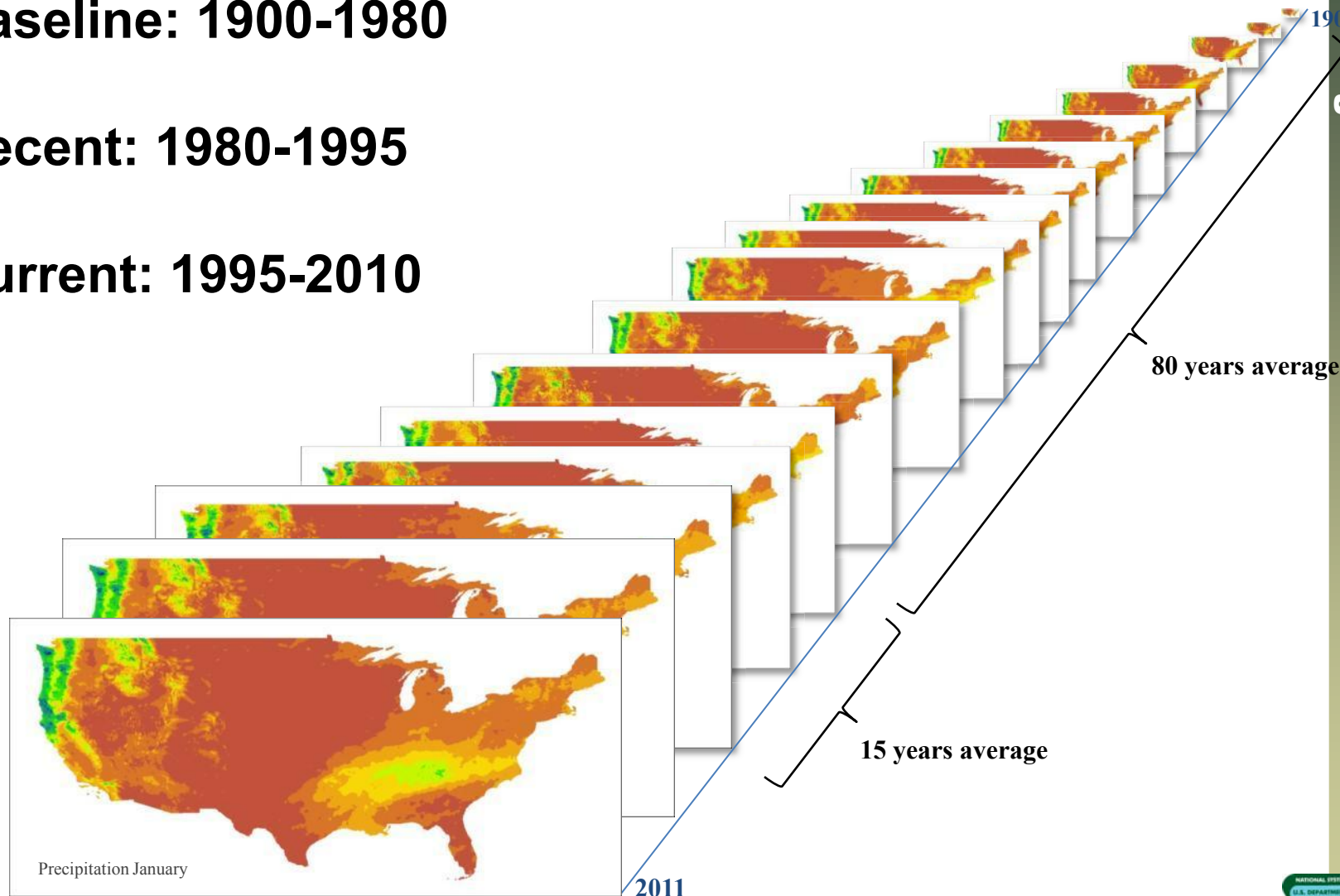


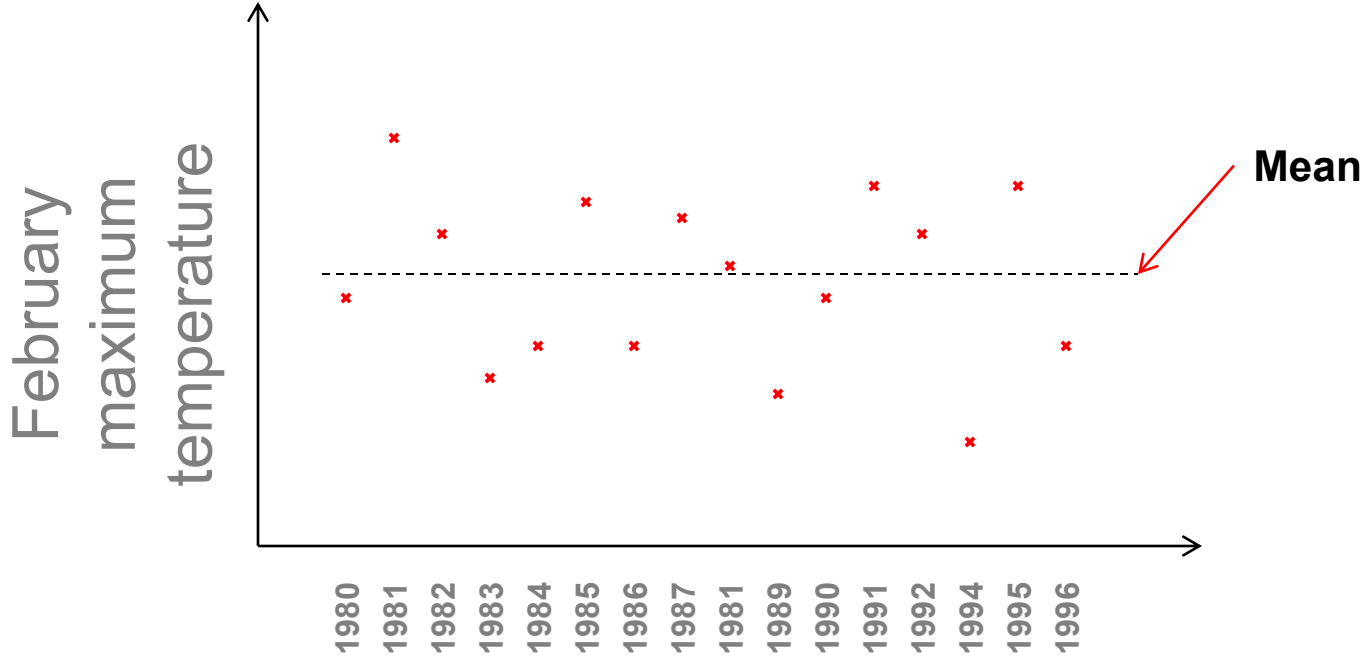
Observed climate space trends

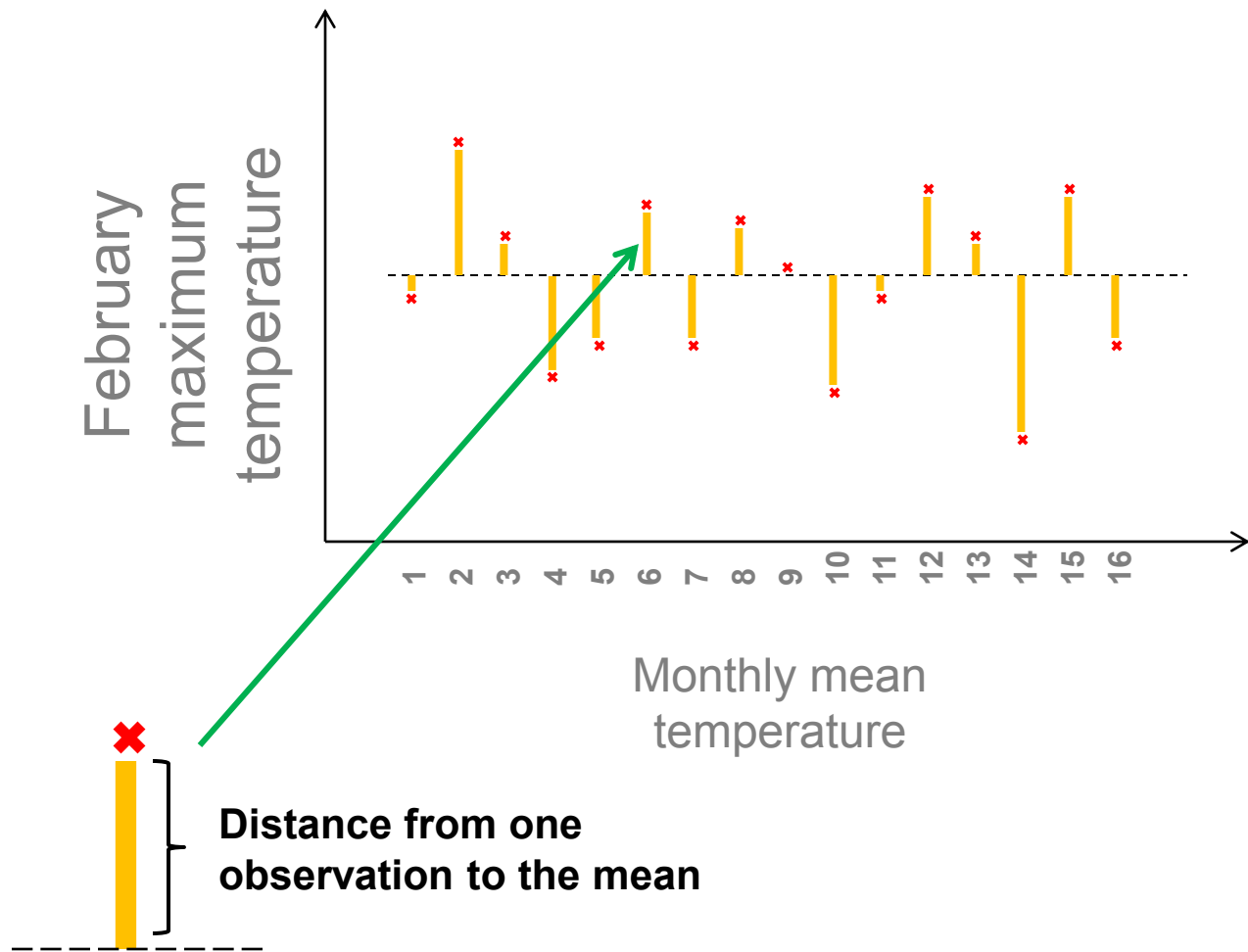
Baseline: 1900-1980

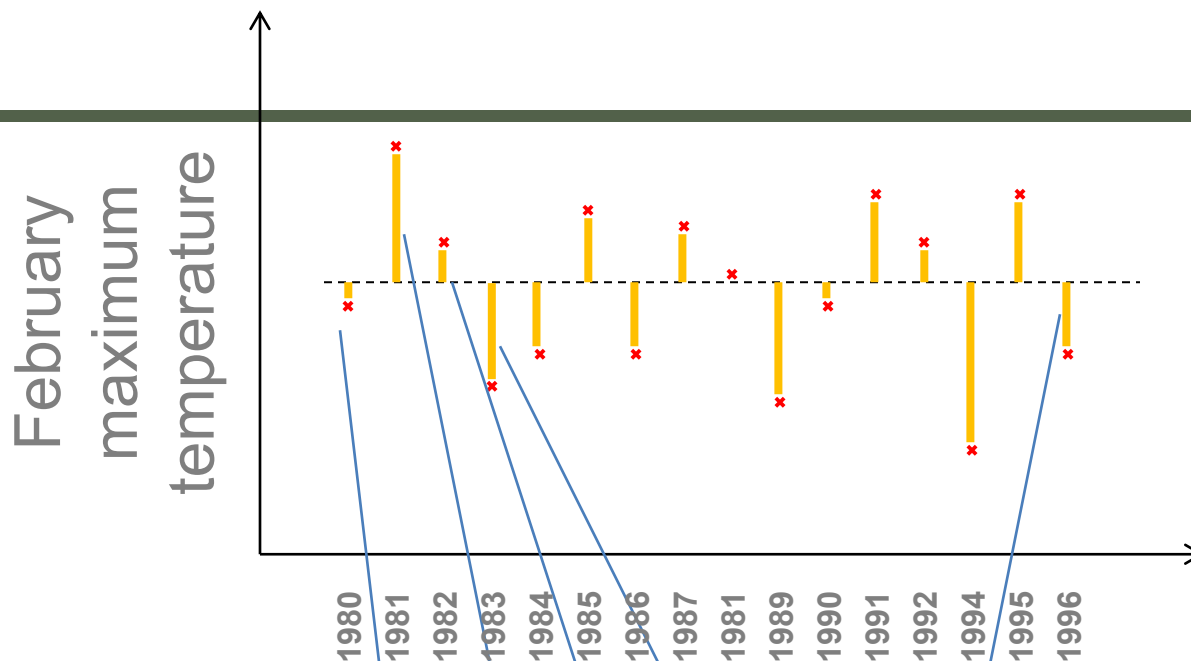
Recent: 1980-1995

Current: 1995-2010





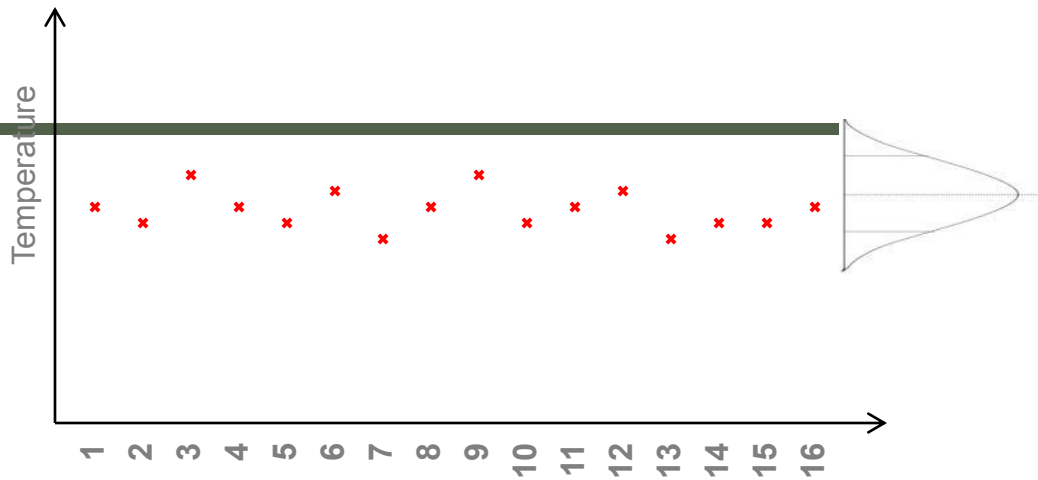




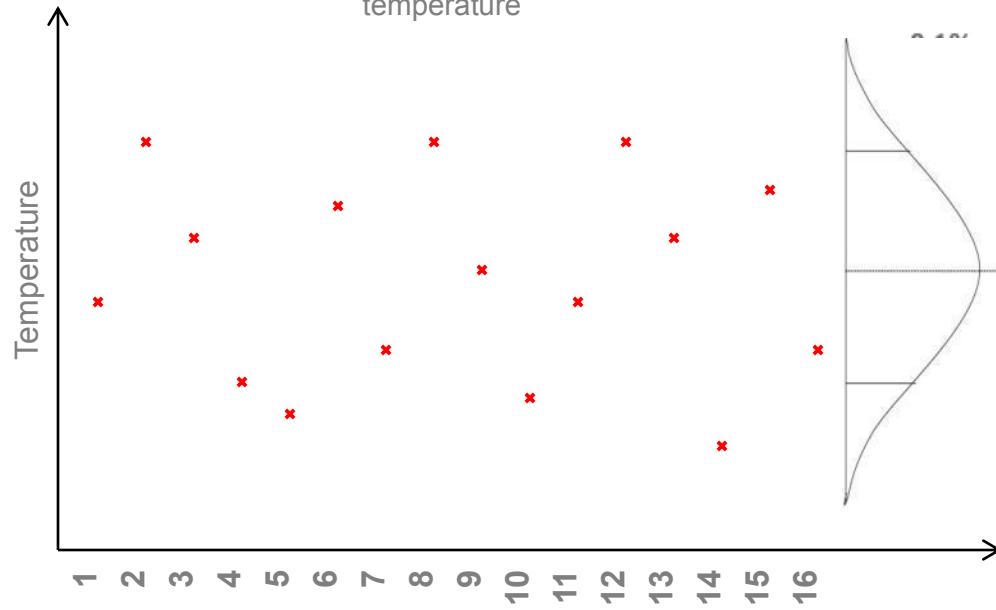
The average of the squared differences from the mean

$$= (X_1)^2 + (X_2)^2 + (X_2)^2 + (X_3)^2 + \dots (X_{16})^2 = \text{Variance}$$

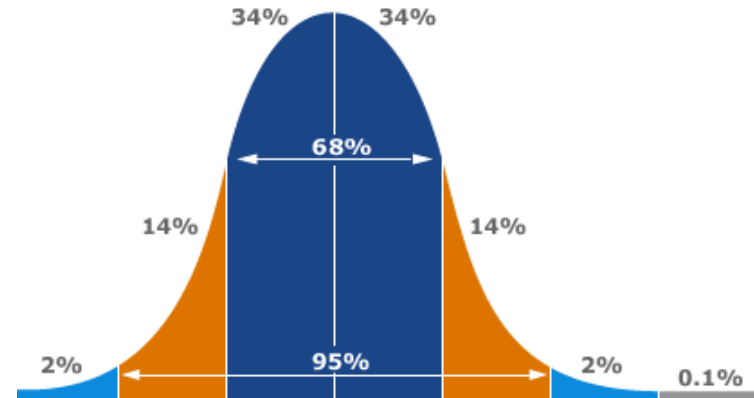
Standard deviation = Square root of the Variance



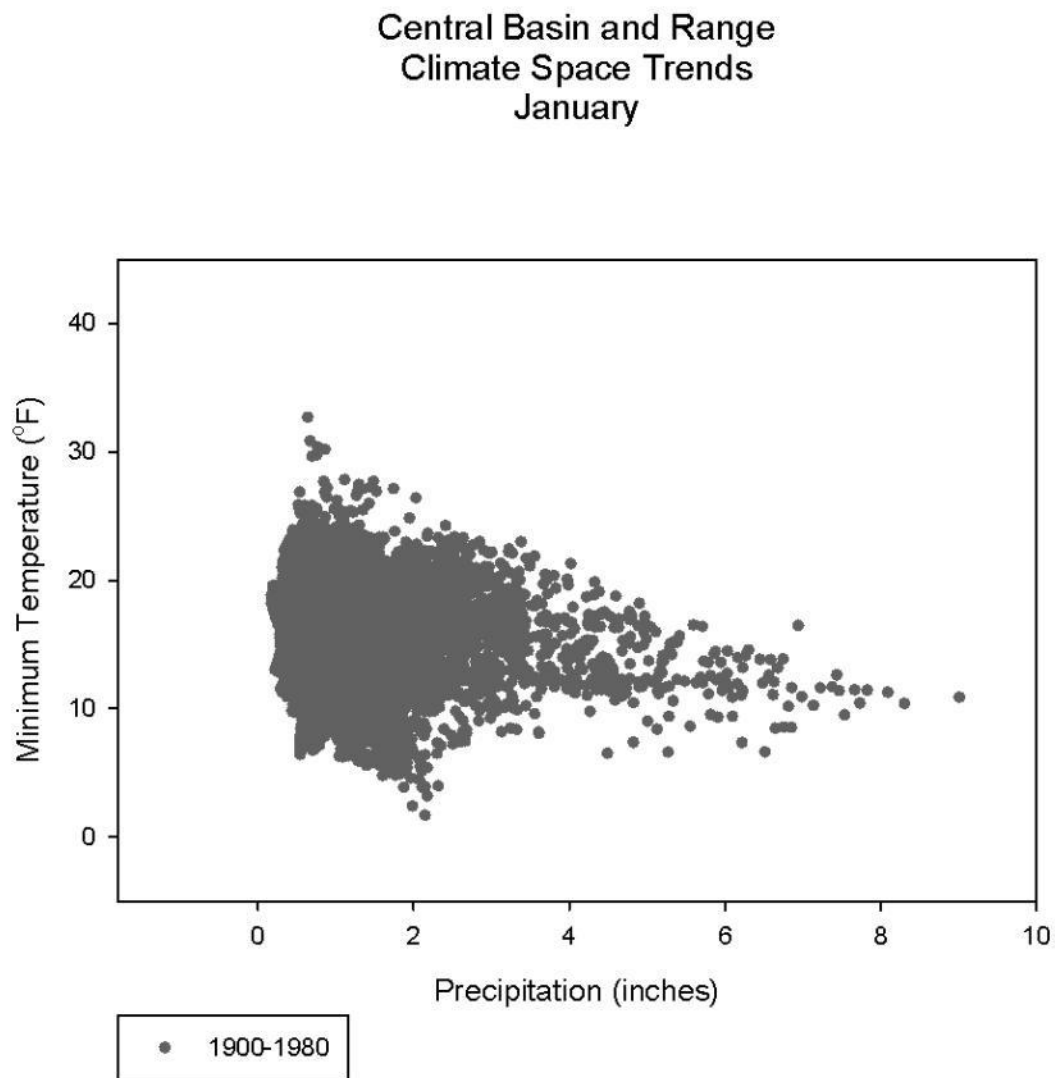
Monthly mean temperature

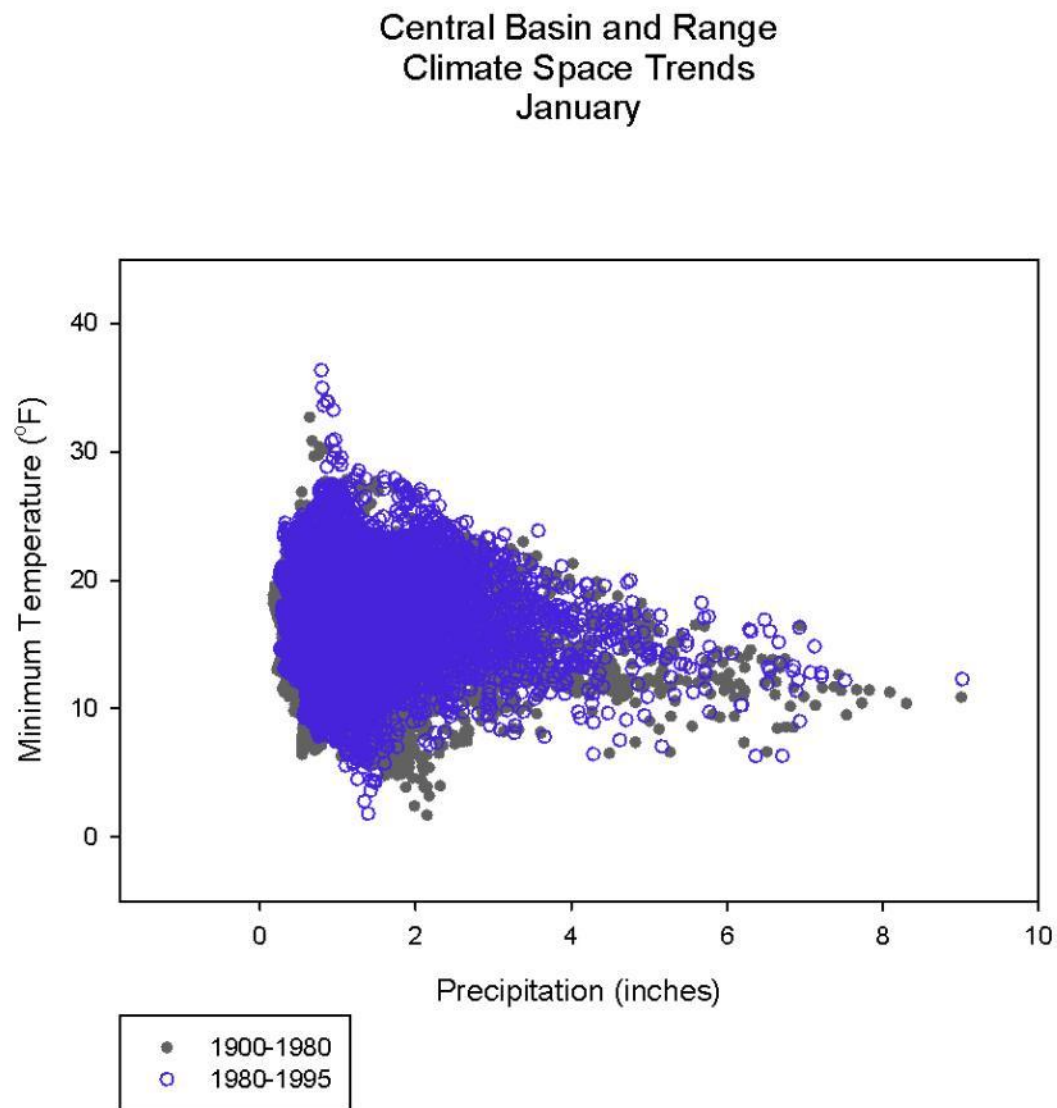


Monthly mean temperature

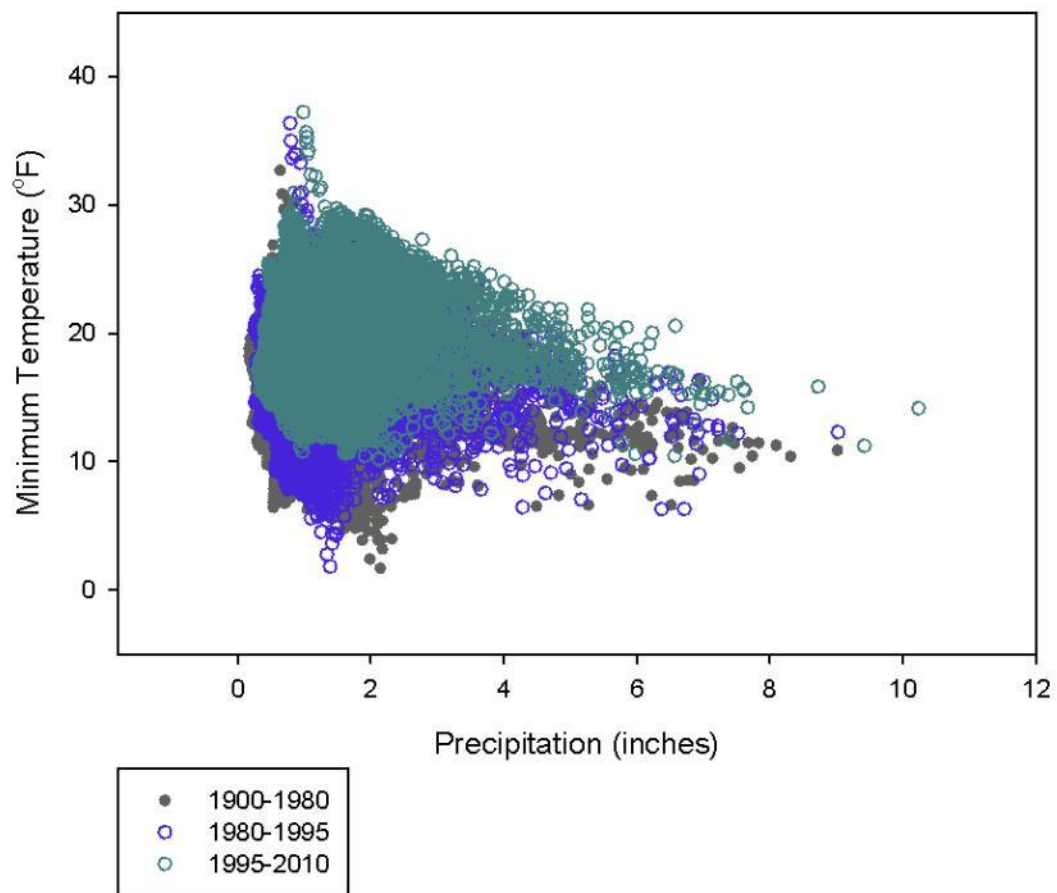


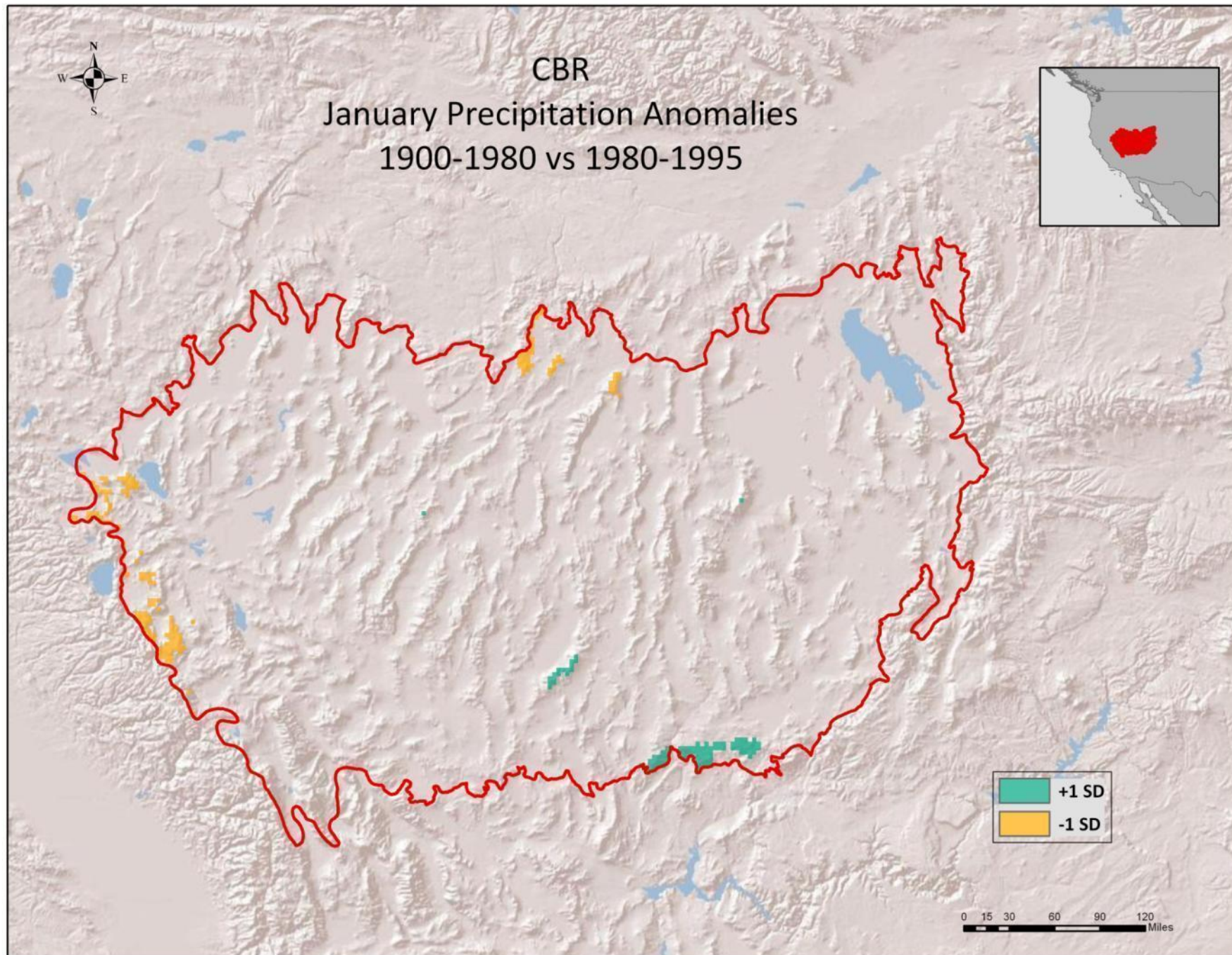
**68 % of the
observations fall
within ± 1 SD
and 95% of
observations fall
within ± 2 SD**

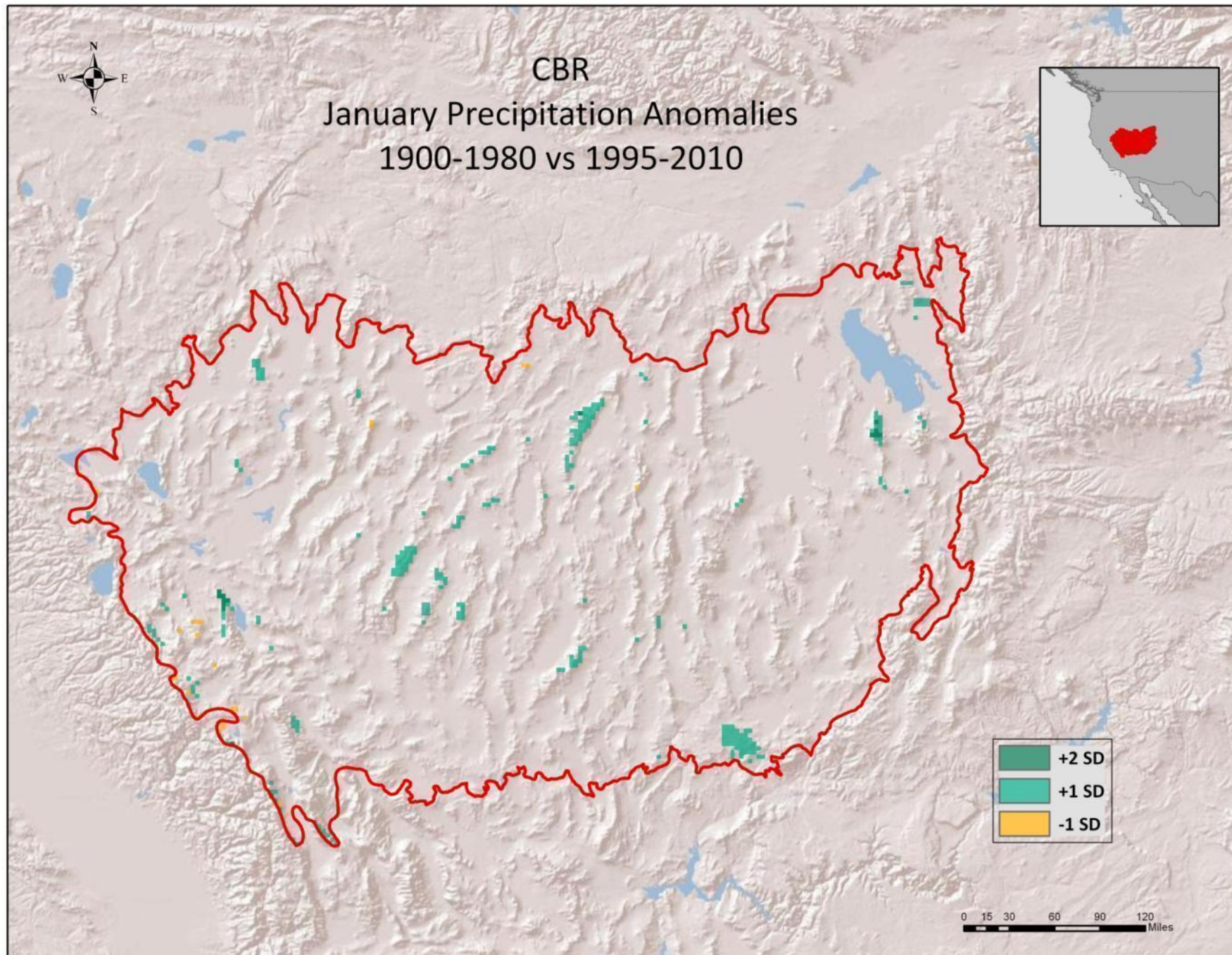




Central Basin and Range Climate Space Trends January







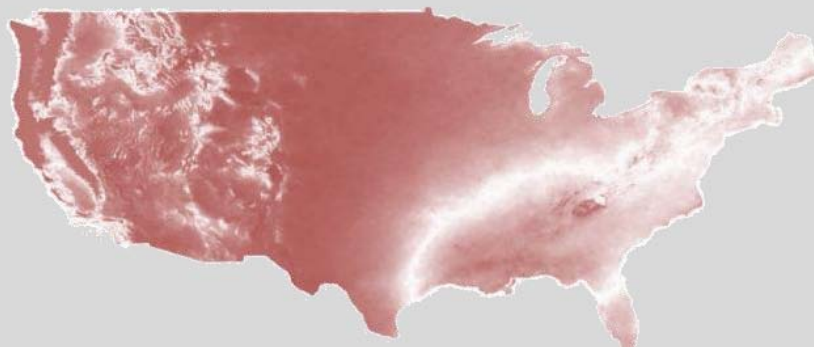
Spatial Climate Datasets - Future

EcoClim.org

Spatial climate data for ecological forecasting



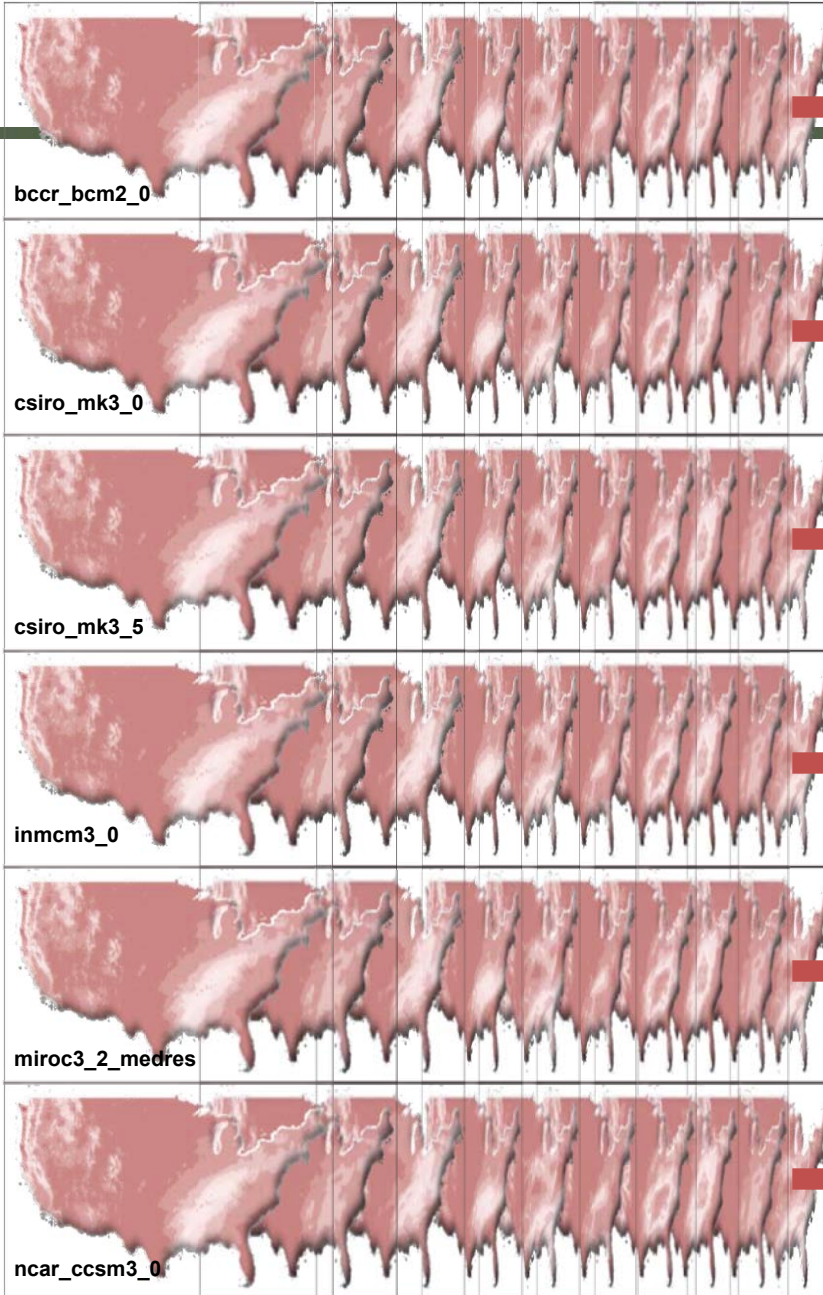
- **Future climate**
- **Method: Interpolated deltas integrated to PRISM**
- **Decadal averages: 2020-2029, 2050-2059**
- **Variables: monthly max temp, monthly min temp, and monthly total precipitation**
- **6 GCMs, A2 emissions scenario**
- **Spatial resolution: 4km²**



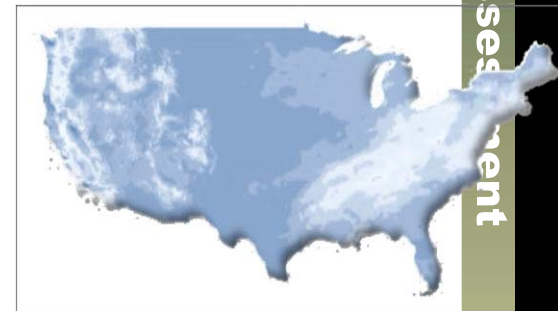
Single years

2020 – 2021 – 2022 – 2023 – 2024 – 2025 – 2026 – 2027 – 2028 – 2029

10 year average



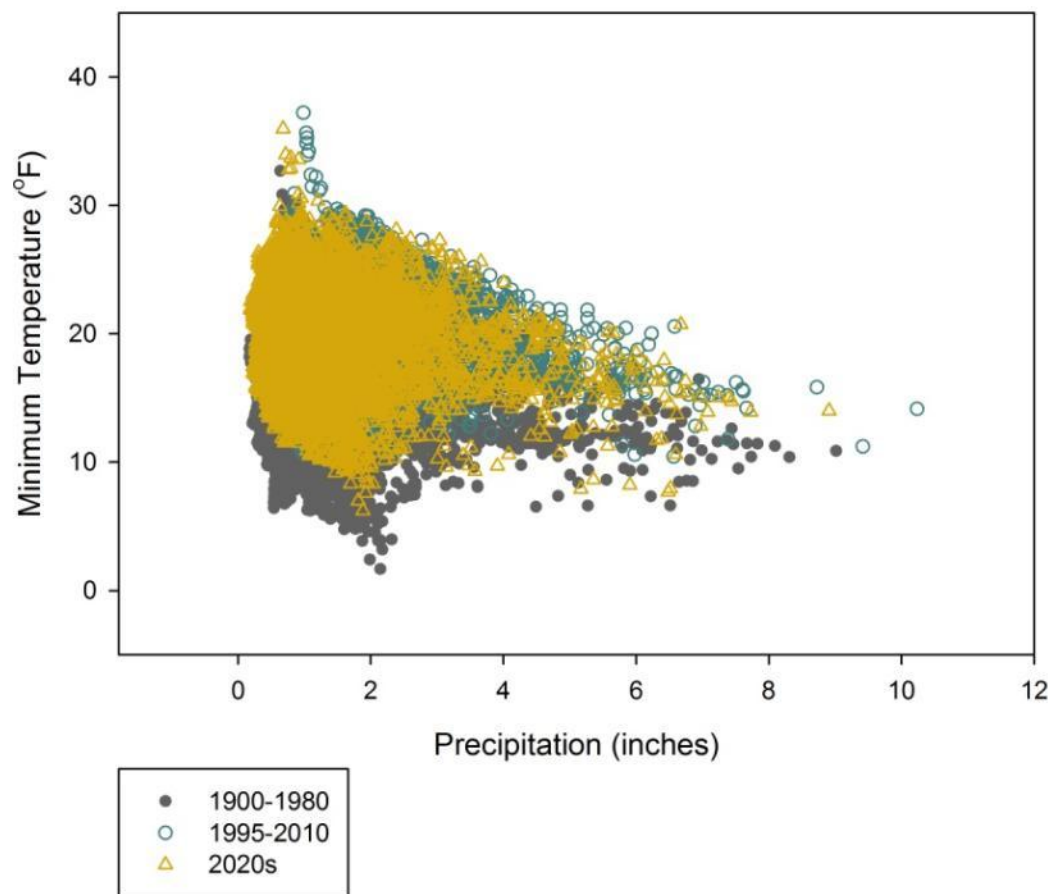
6 GCM average



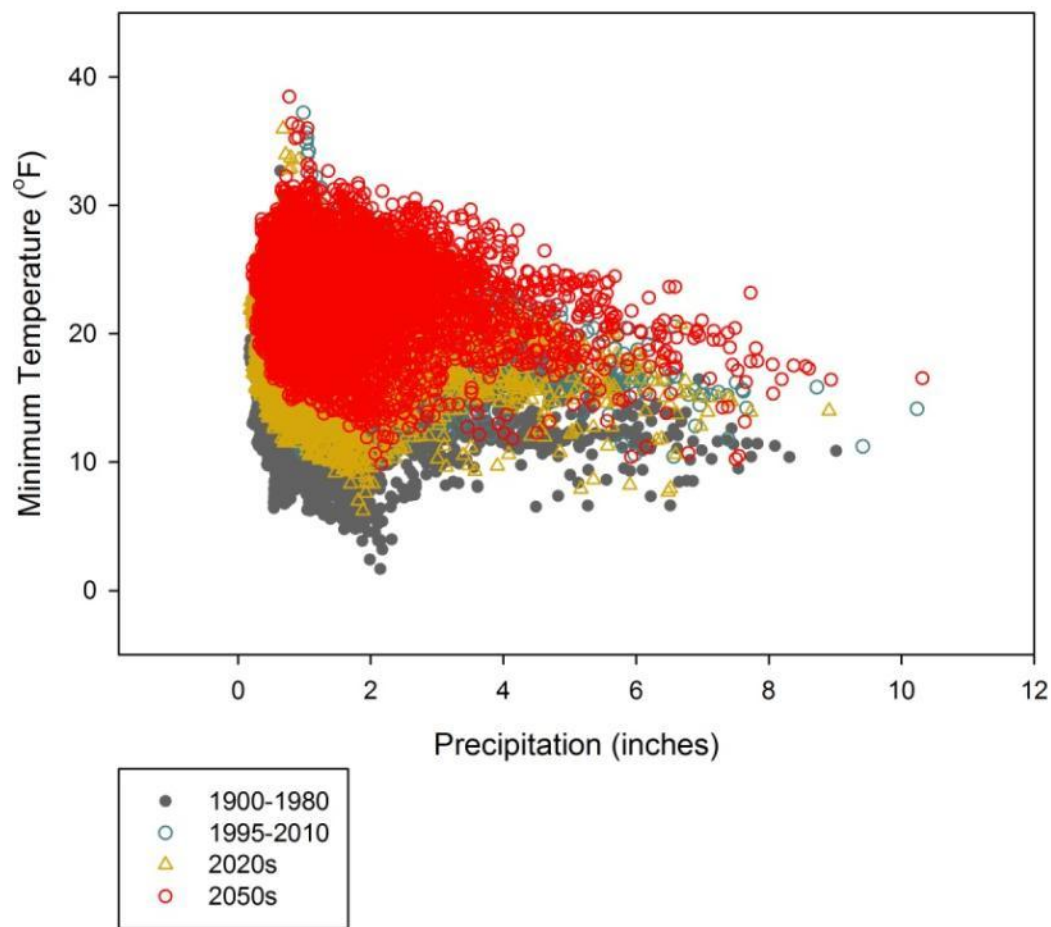
BLM
Rapid Ecoregional Assessment



Central Basin and Range Climate Space Trends January

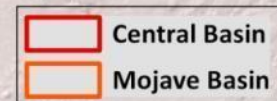


Central Basin and Range Climate Space Trends January





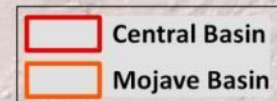
Central Basin and Mojave Basin January Precipitation Anomalies 1900-1980 vs 2020s



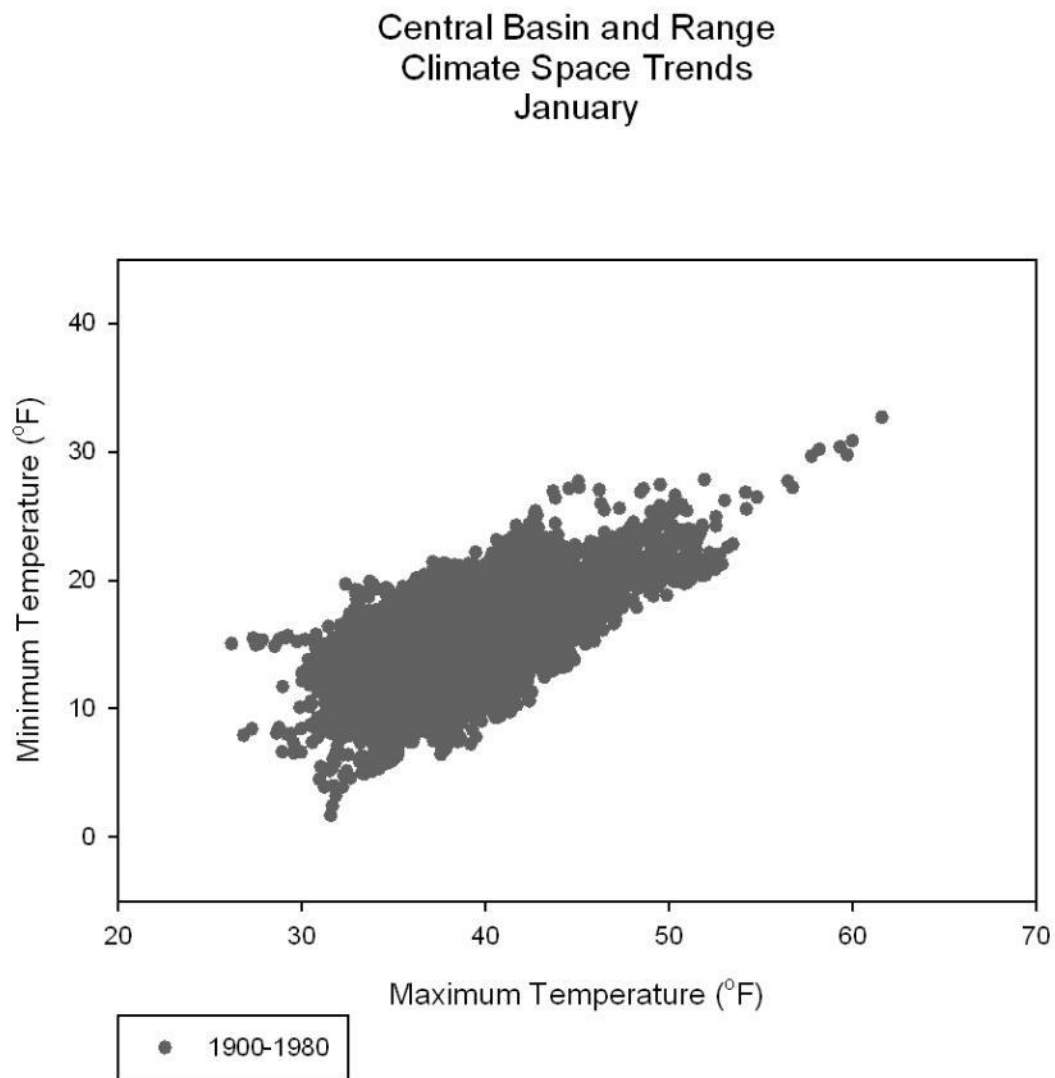
0 15 30 60 90 120
Miles

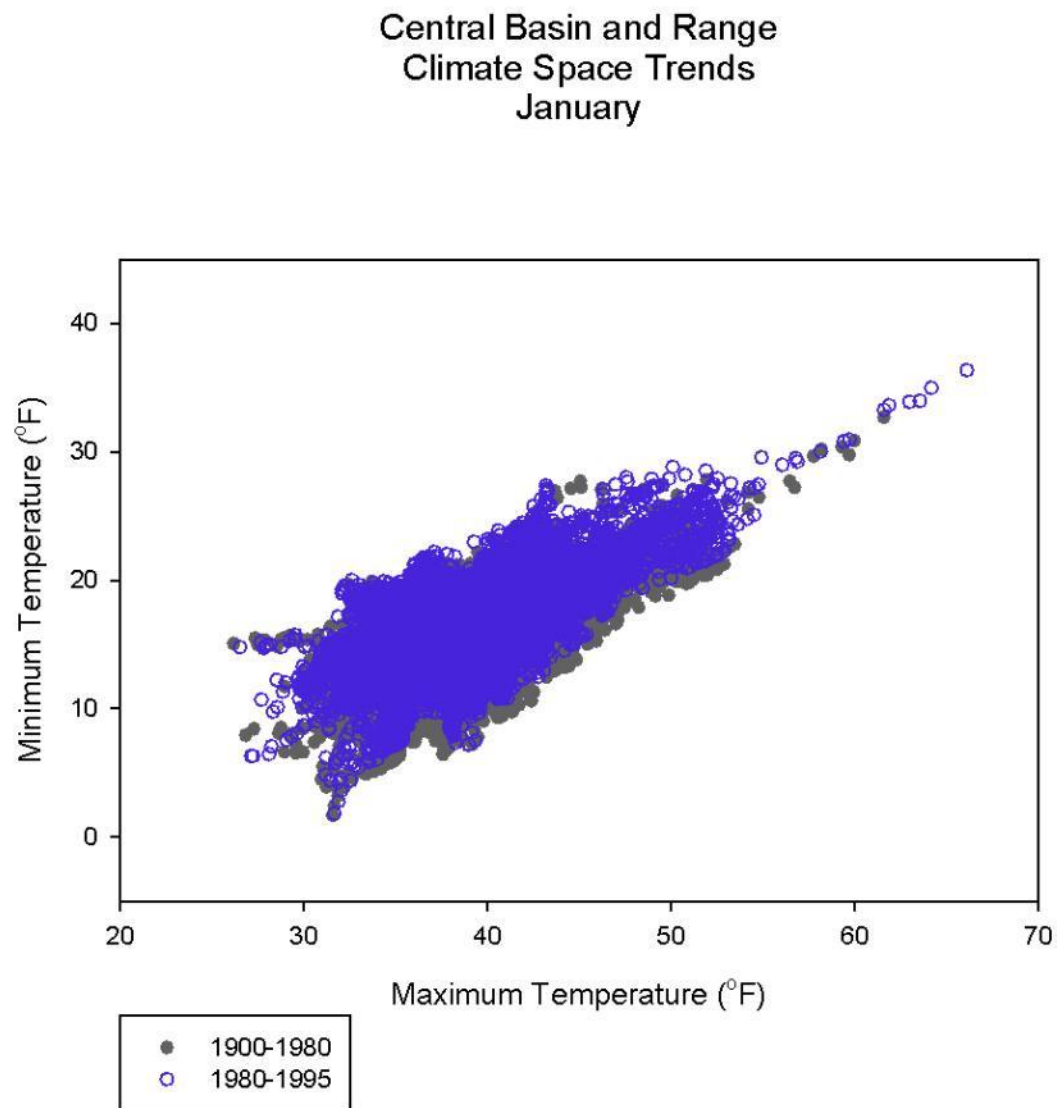


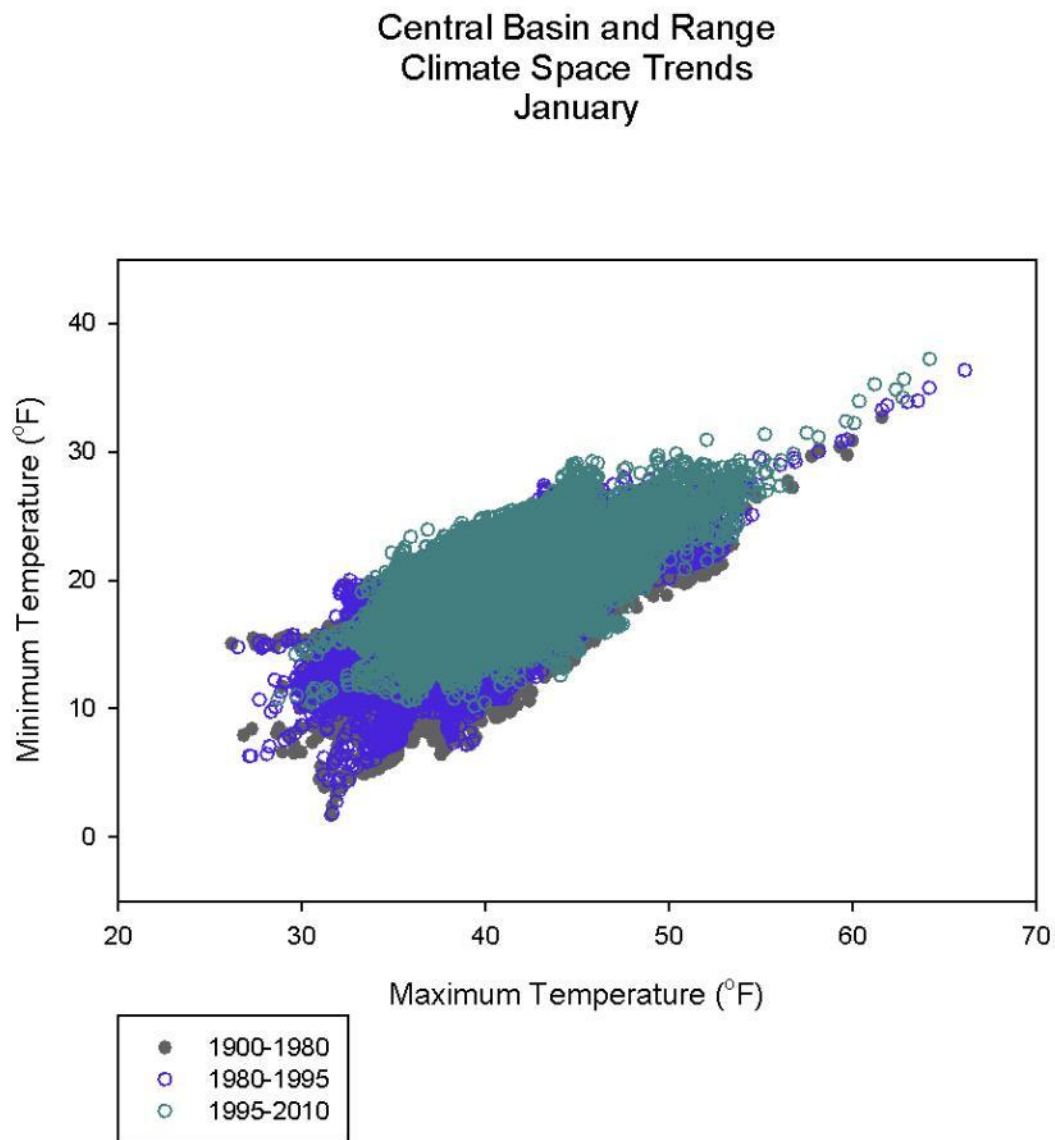
Central Basin and Mojave Basin January Precipitation Anomalies 1900-1980 vs 2050s

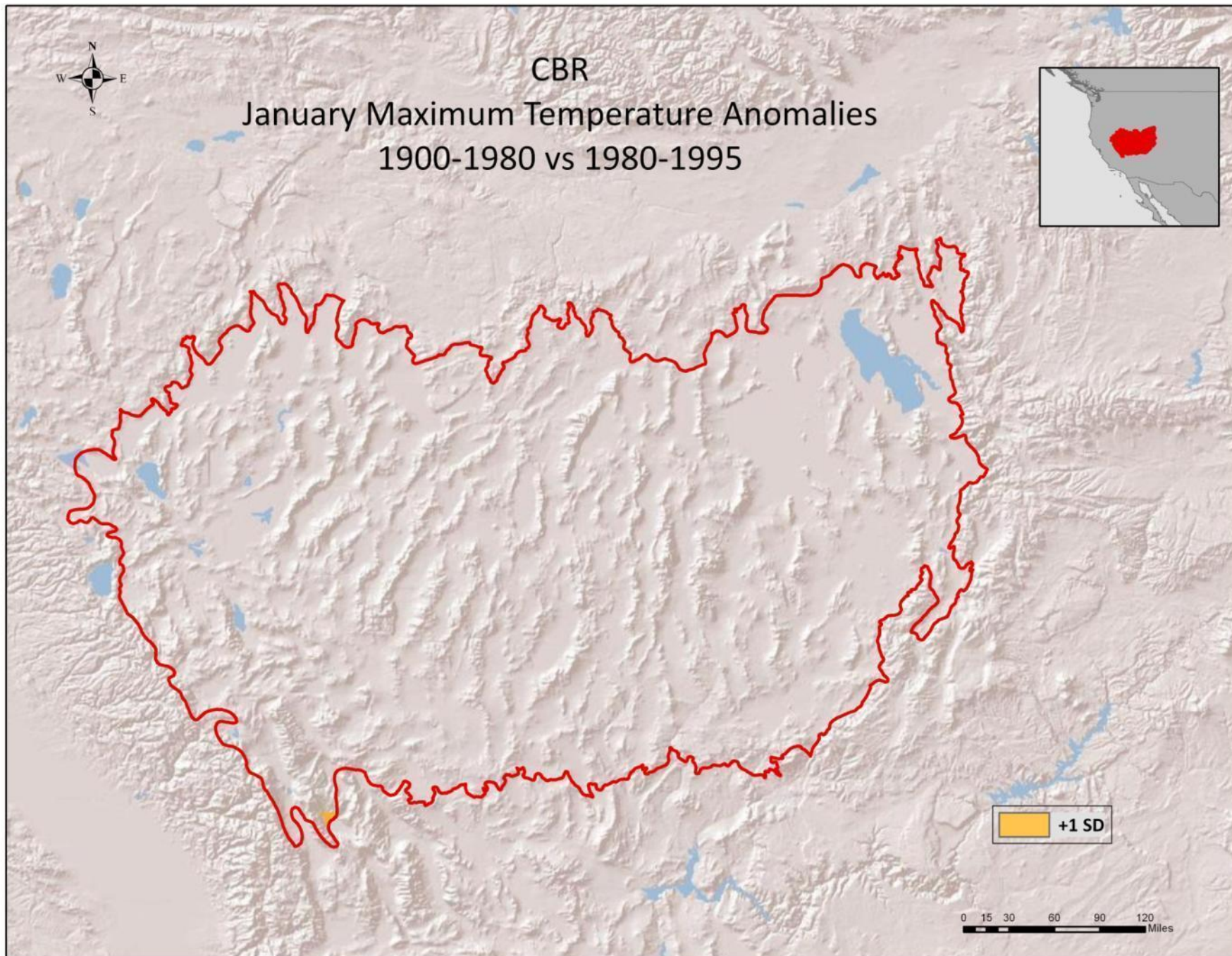


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Miles





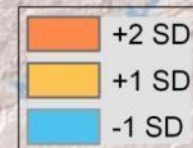




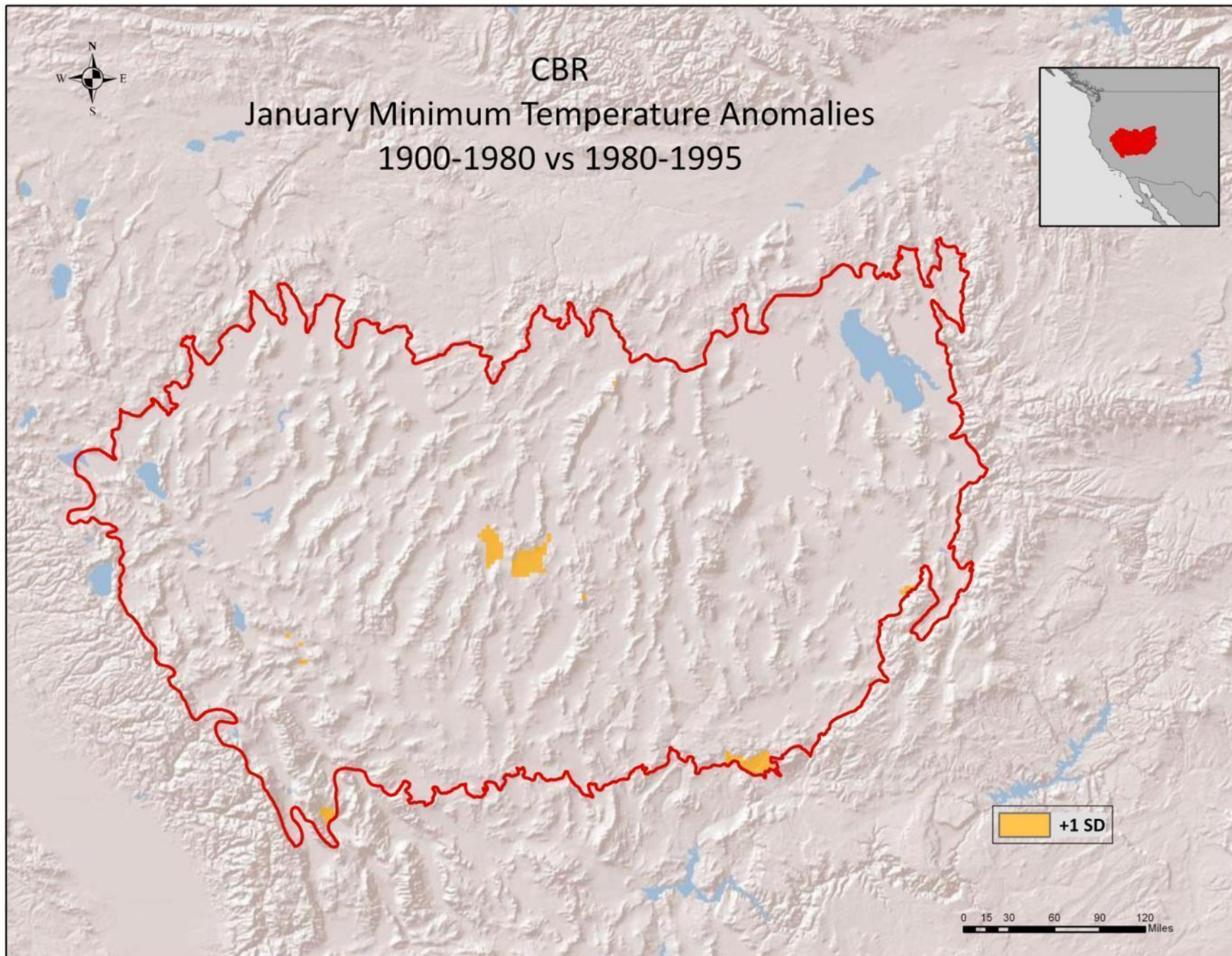


CBR

January Maximum Temperature Anomalies 1900-1980 vs 1995-2010



0 15 30 60 90 120 Miles



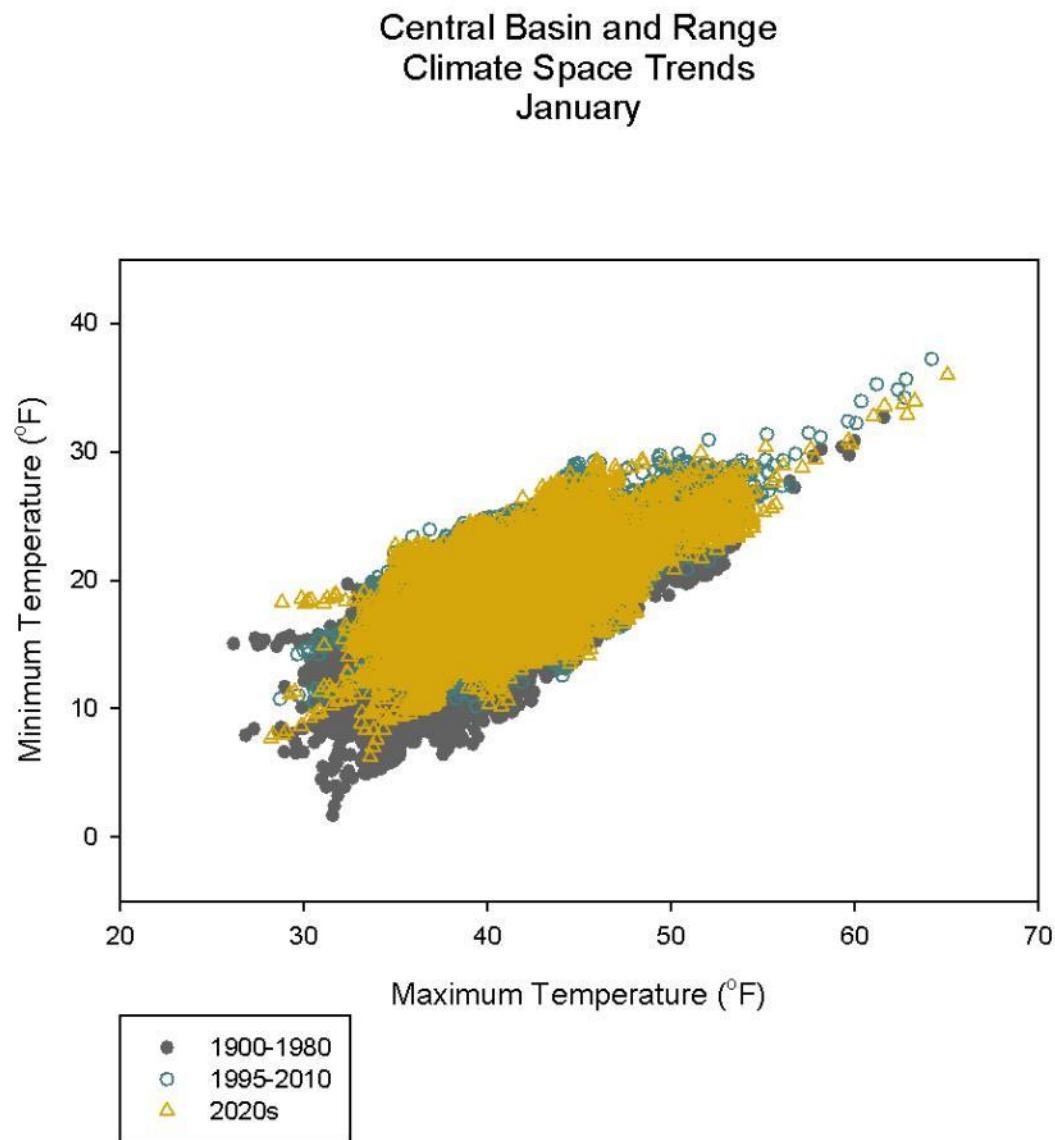


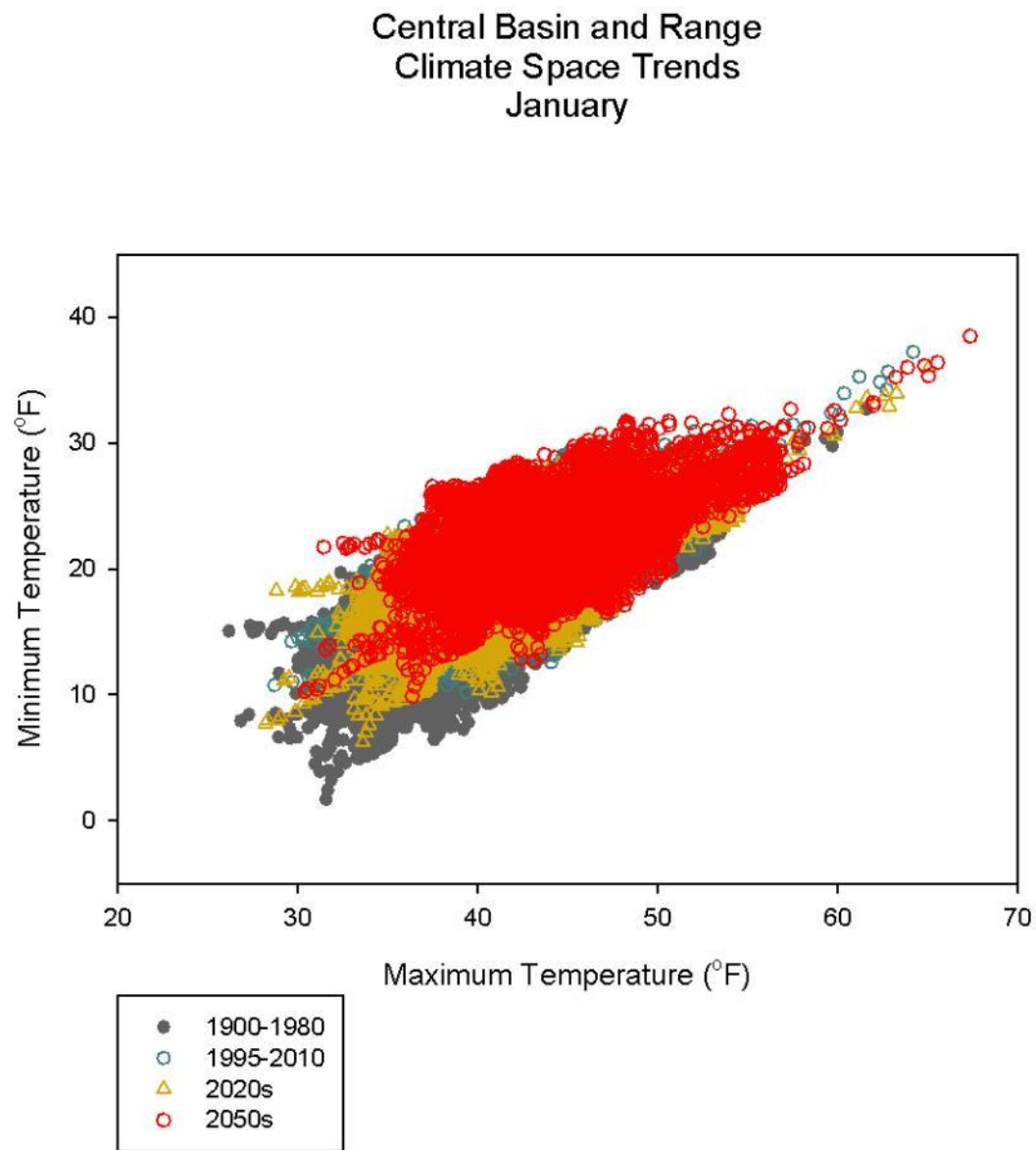
CBR

January Minimum Temperature Anomalies 1900-1980 vs 1995-2010



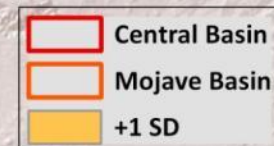
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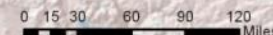
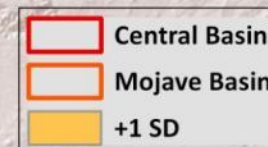
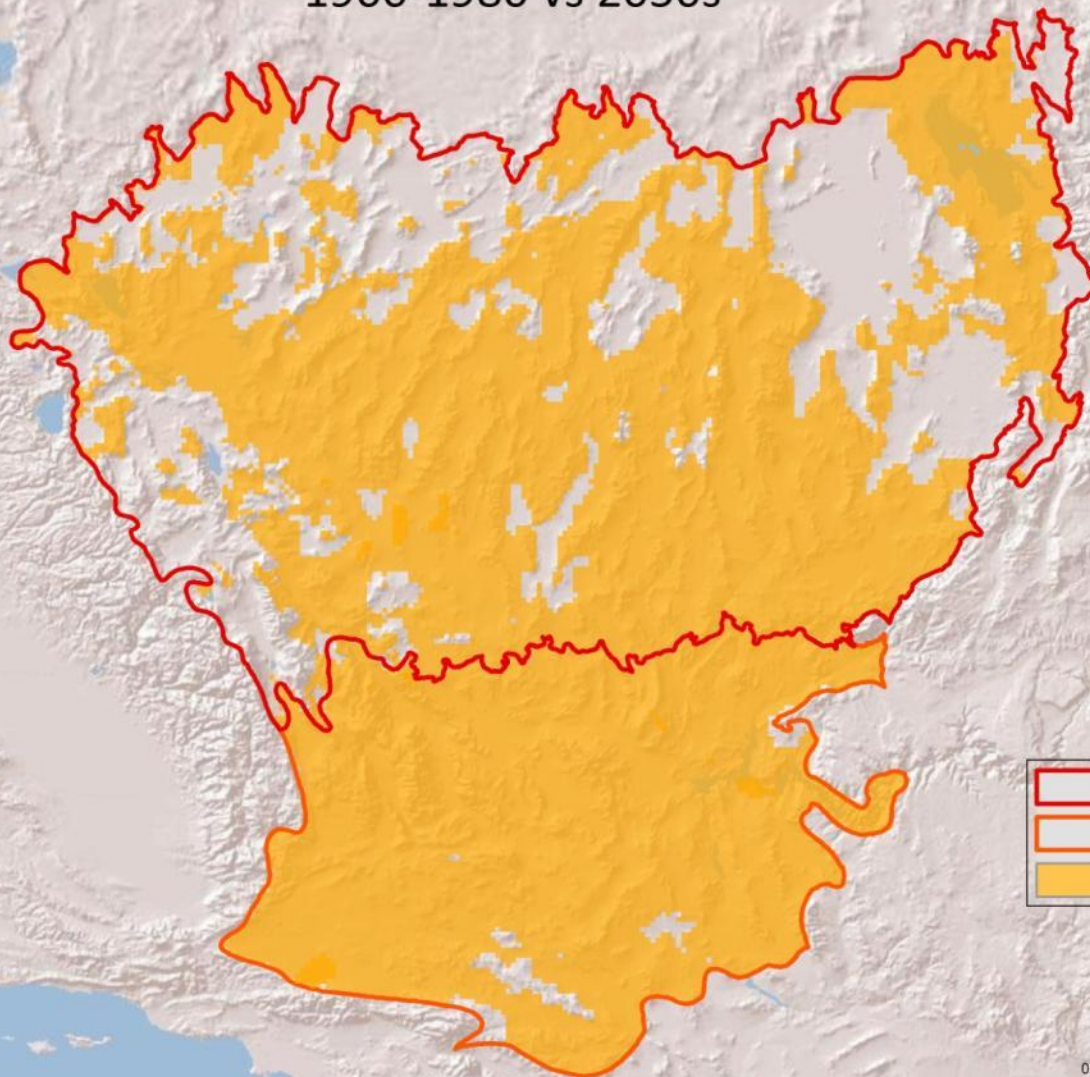
Central Basin and Mojave Basin January Maximum Temperature Anomalies 1900-1980 vs 2020s



0 15 30 60 90 120
Miles

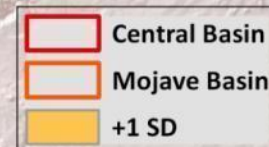


Central Basin and Mojave Basin January Maximum Temperature Anomalies 1900-1980 vs 2050s





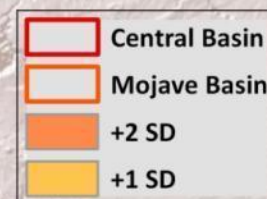
Central Basin and Mojave Basin January Minimum Temperature Anomalies 1900-1980 vs 2020s



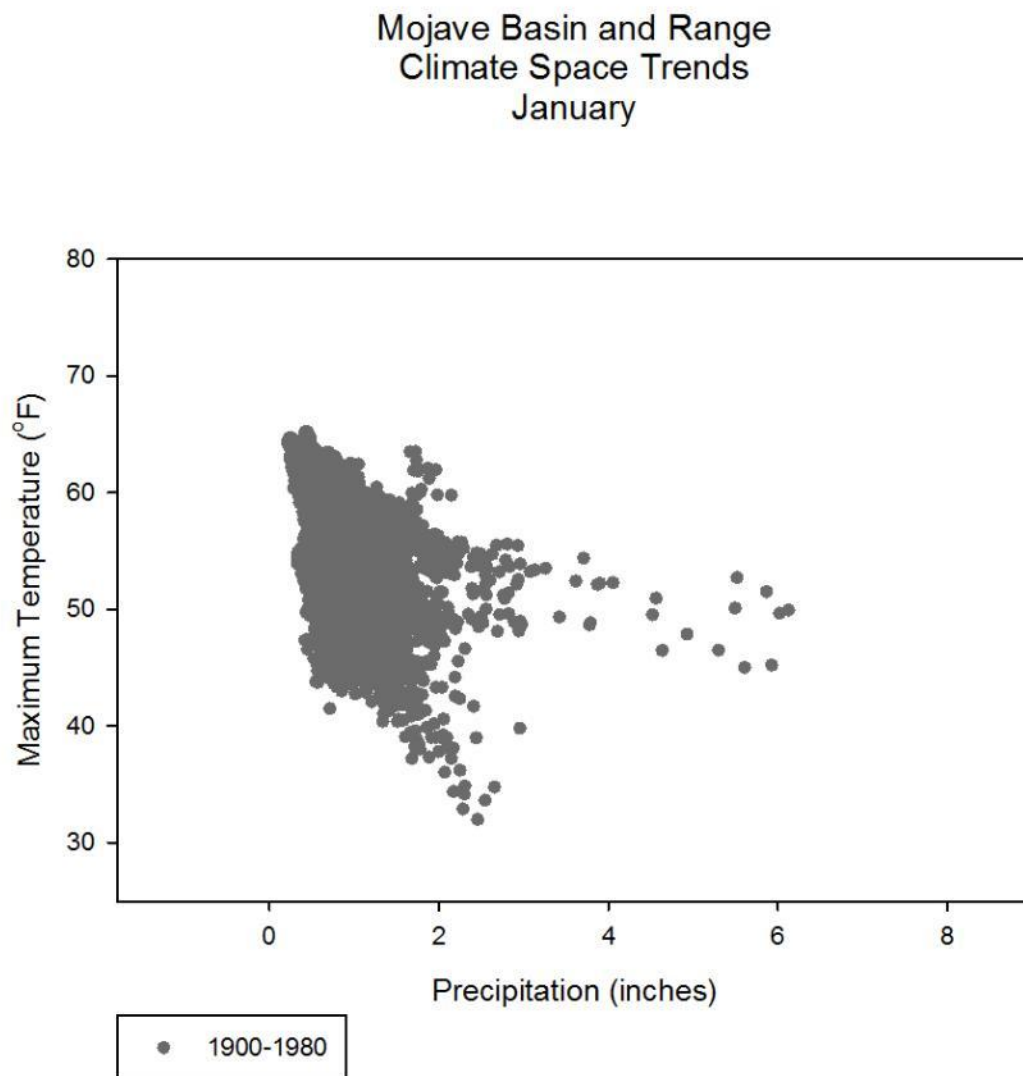
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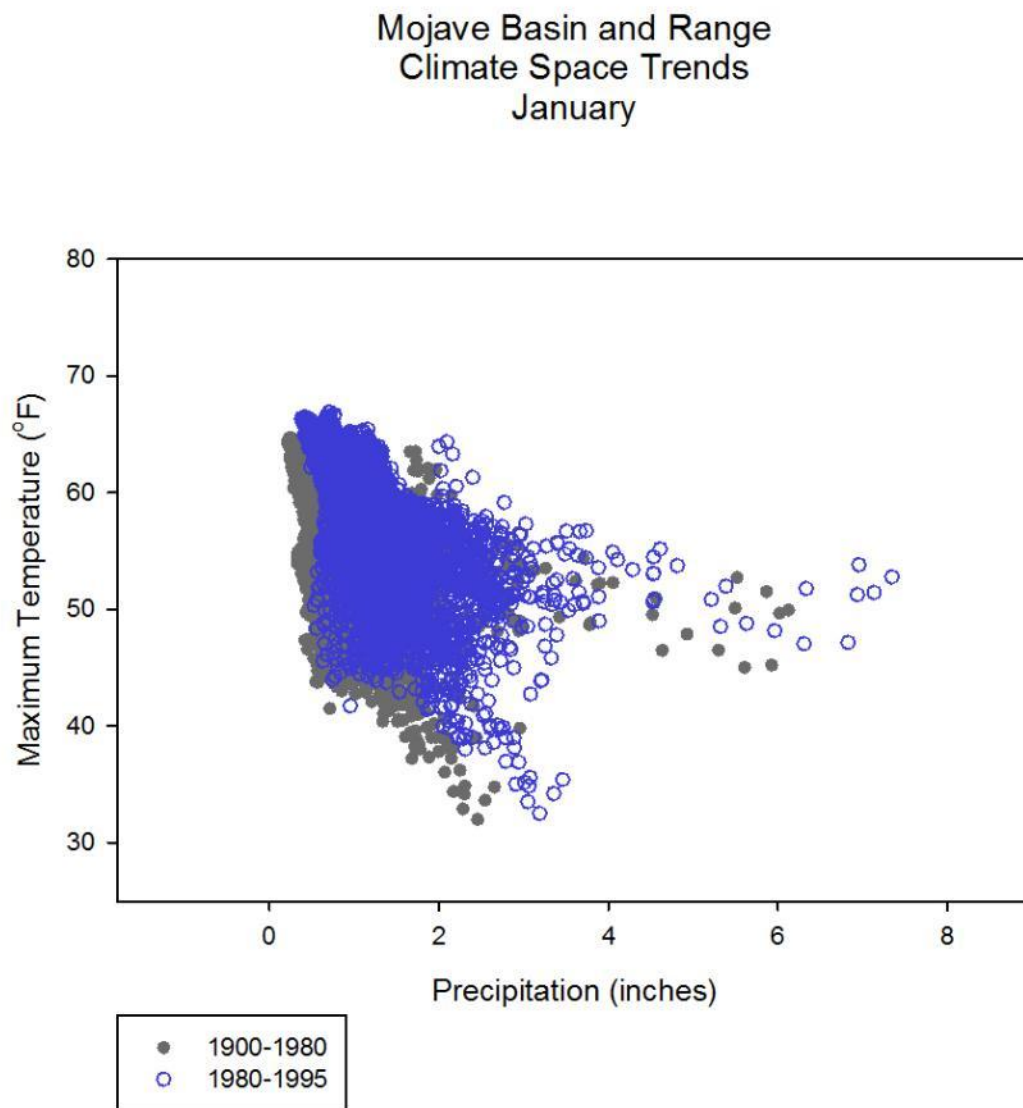


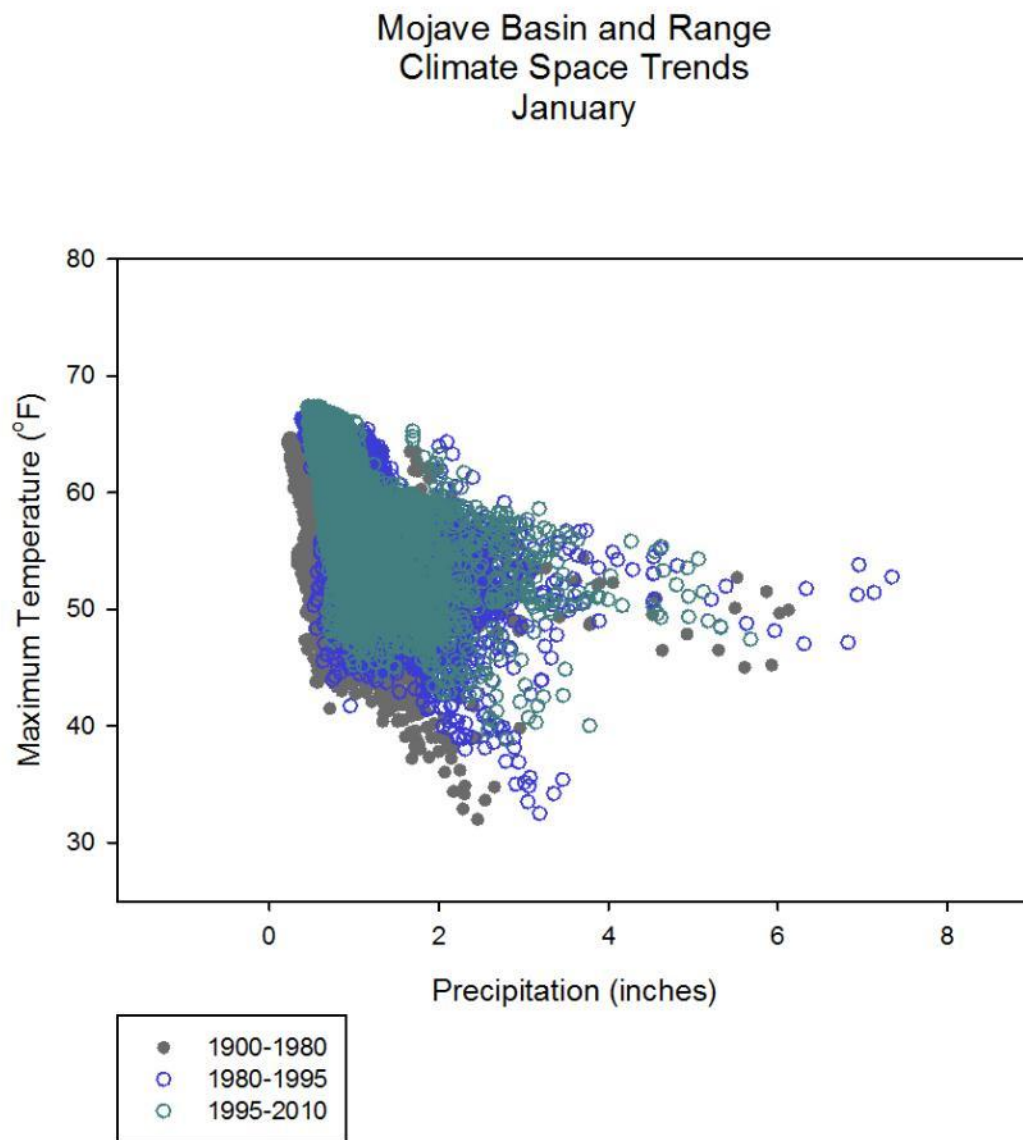
Central Basin and Mojave Basin January Minimum Temperature Anomalies 1900-1980 vs 2050s



0 15 30 60 90 120
Miles





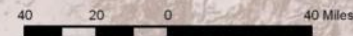
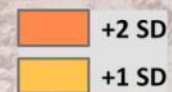
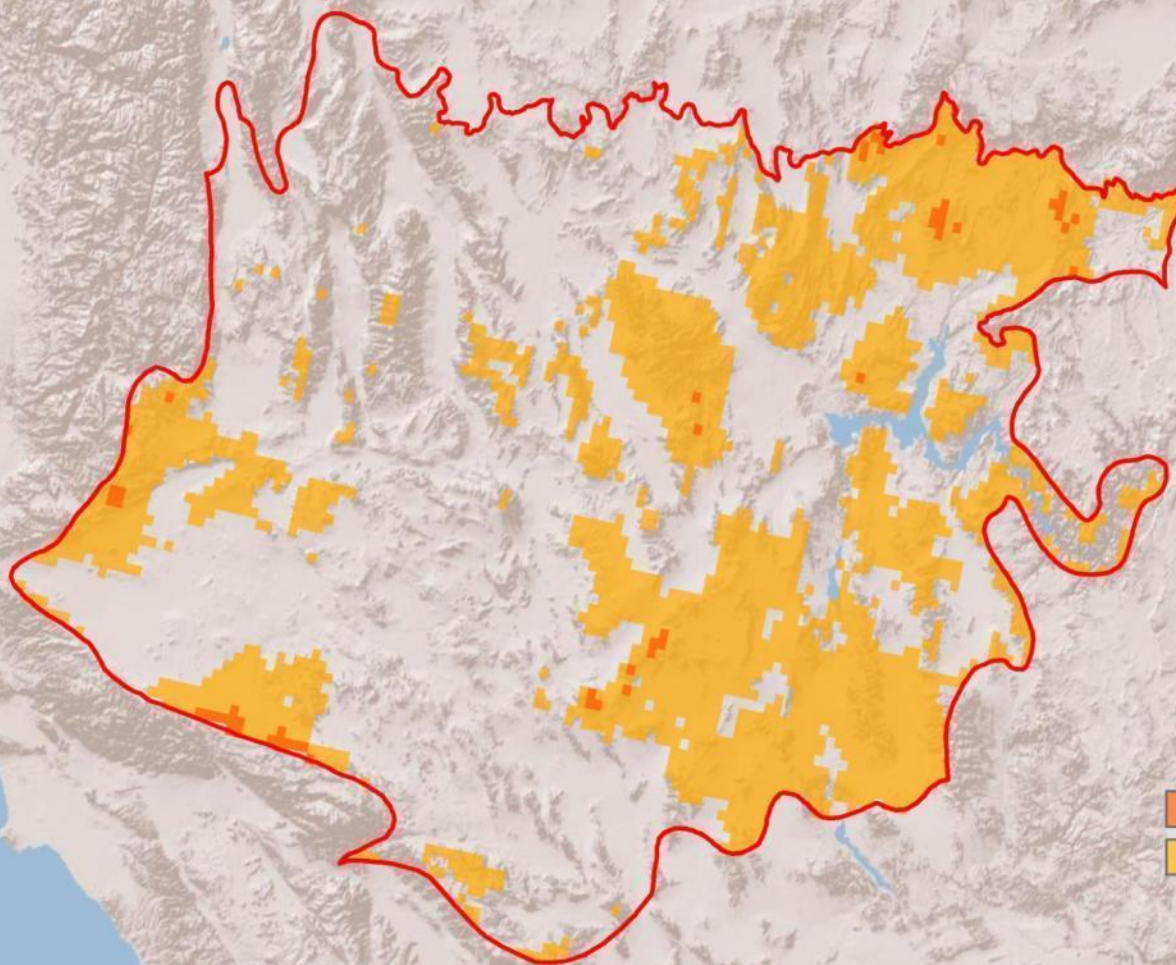




Mojave Basin

January Precipitation Anomalies

1900-1980 vs 1980-1995

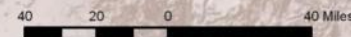
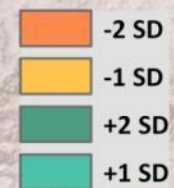


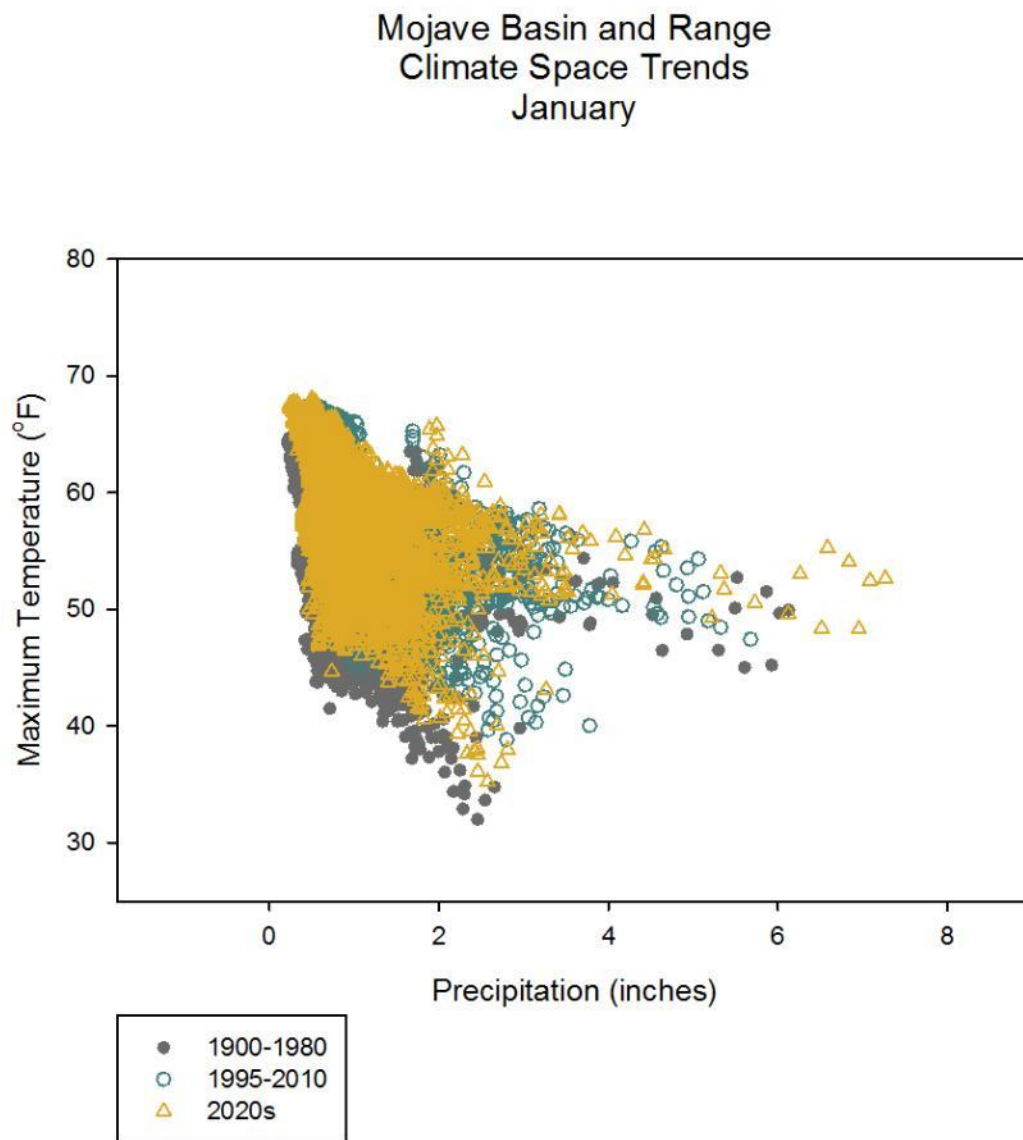


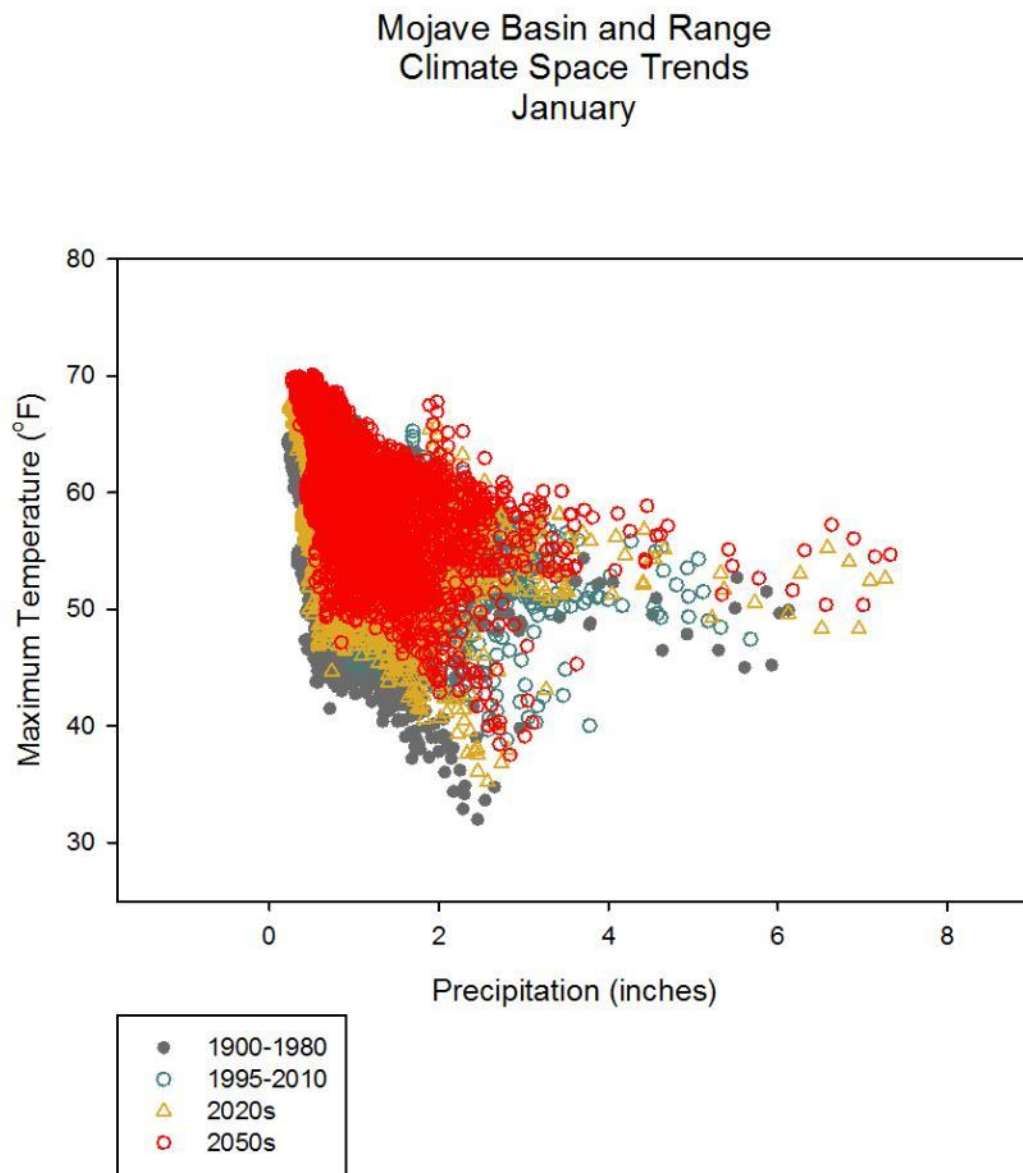
Mojave Basin

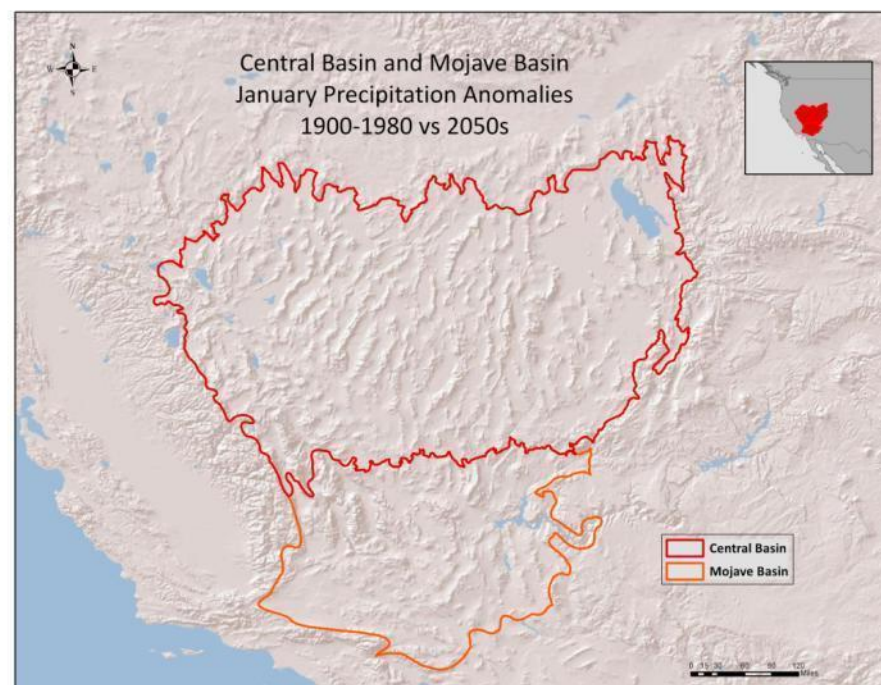
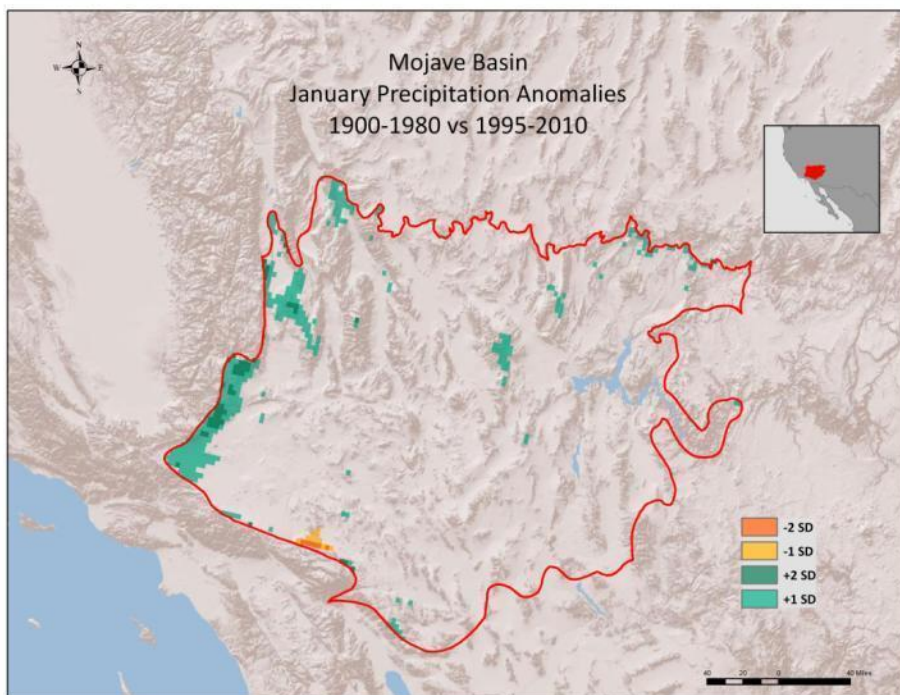
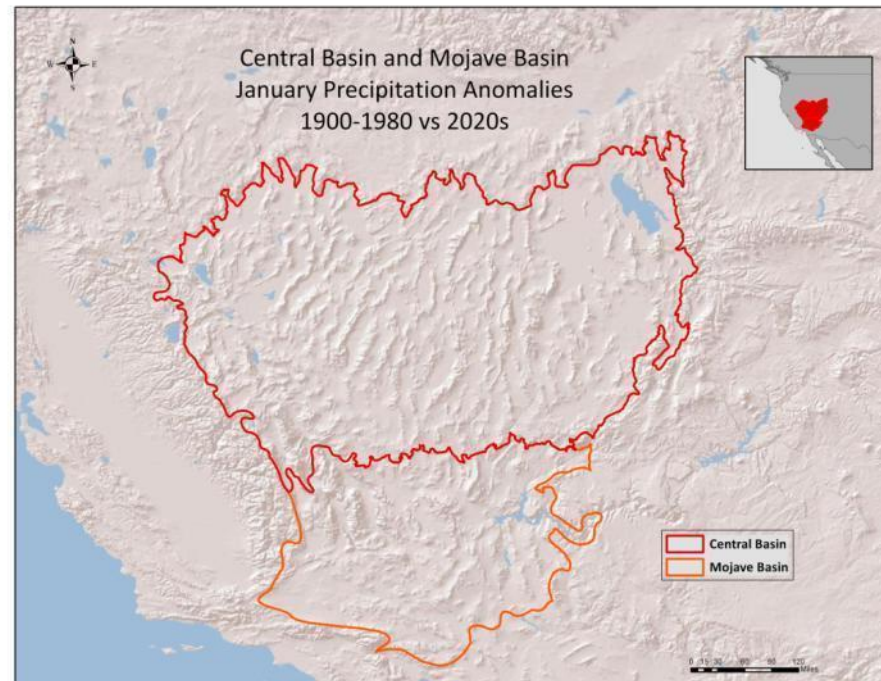
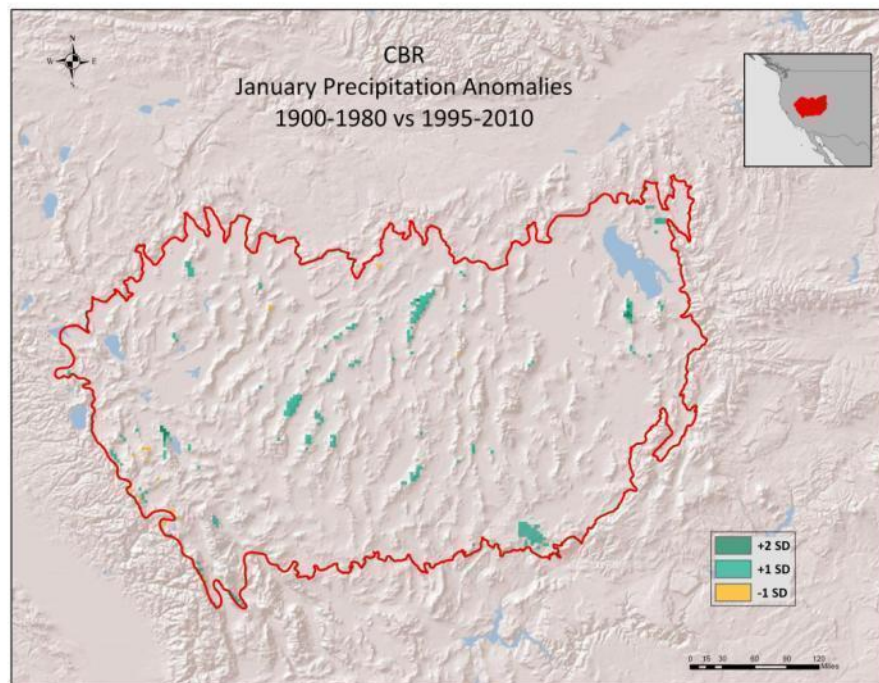
January Precipitation Anomalies

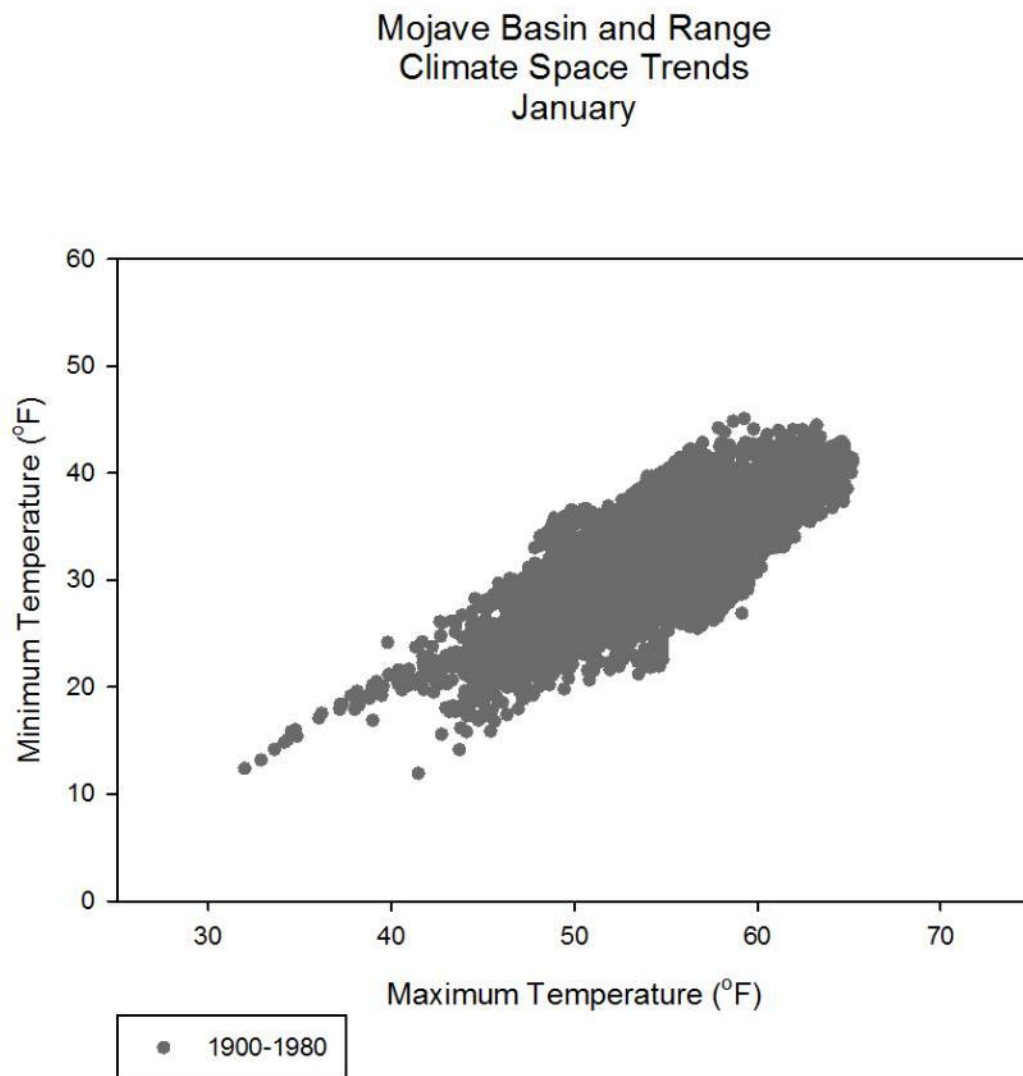
1900-1980 vs 1995-2010

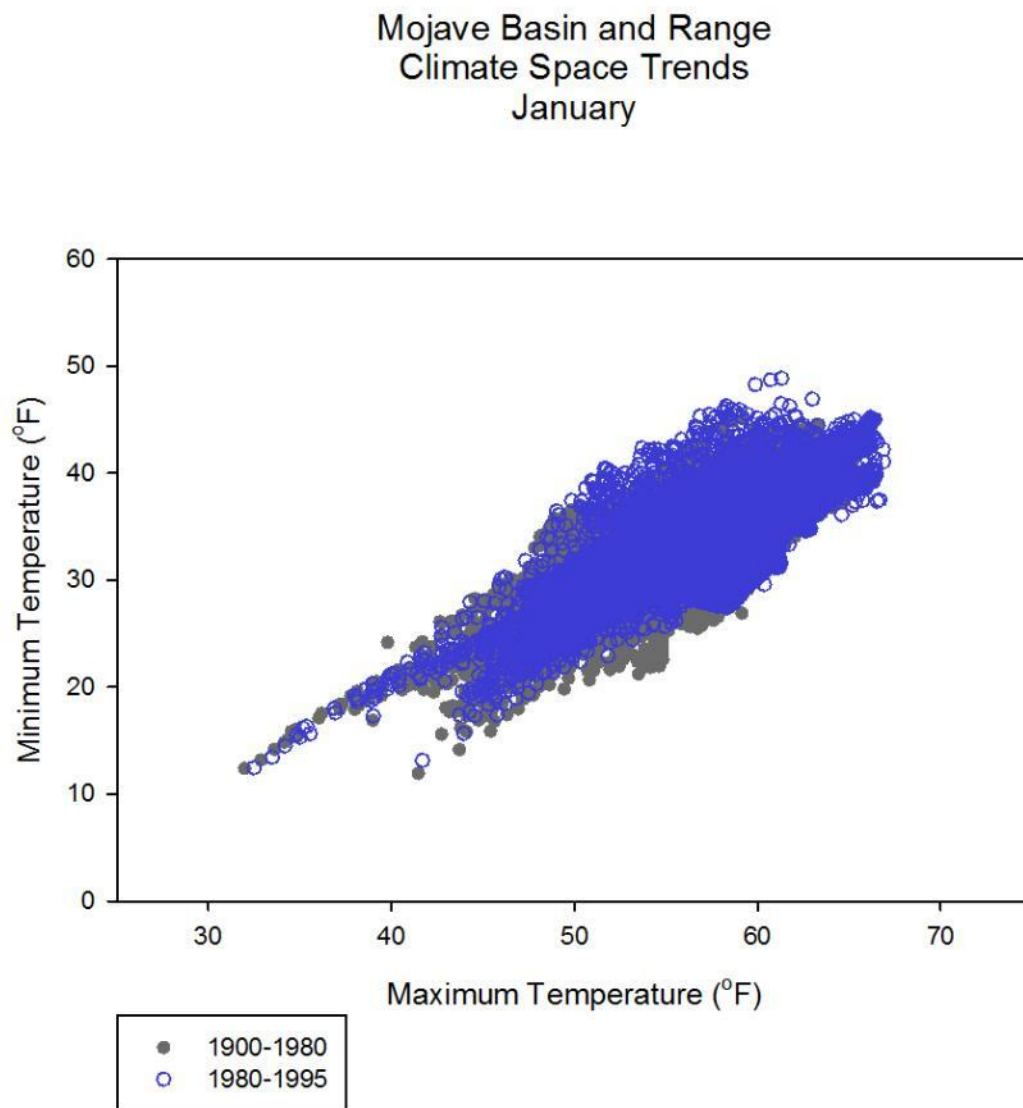


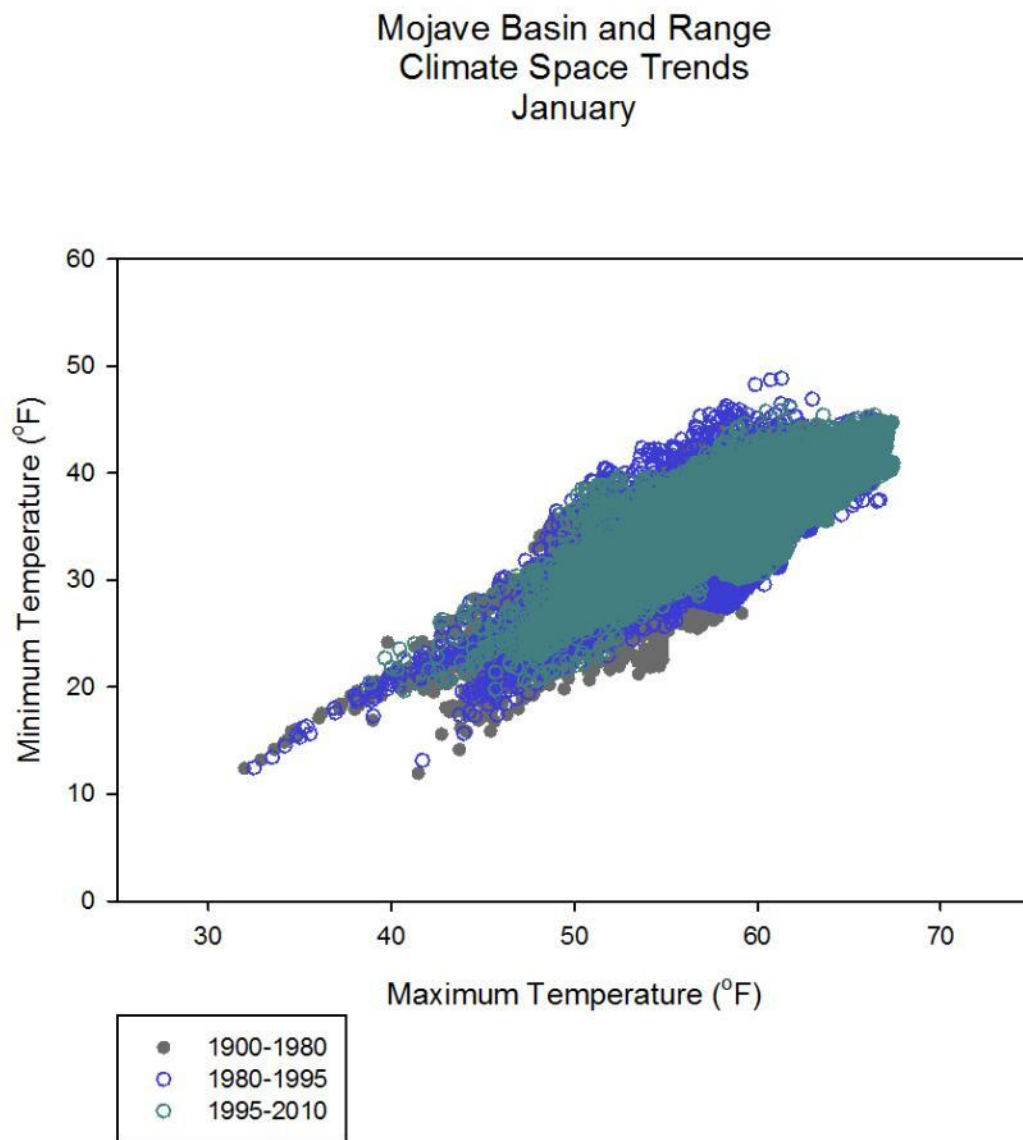














Mojave Basin

January Maximum temperature Anomalies 1900-1980 vs 1980-1995



+1 SD

40 20 0 40 Miles



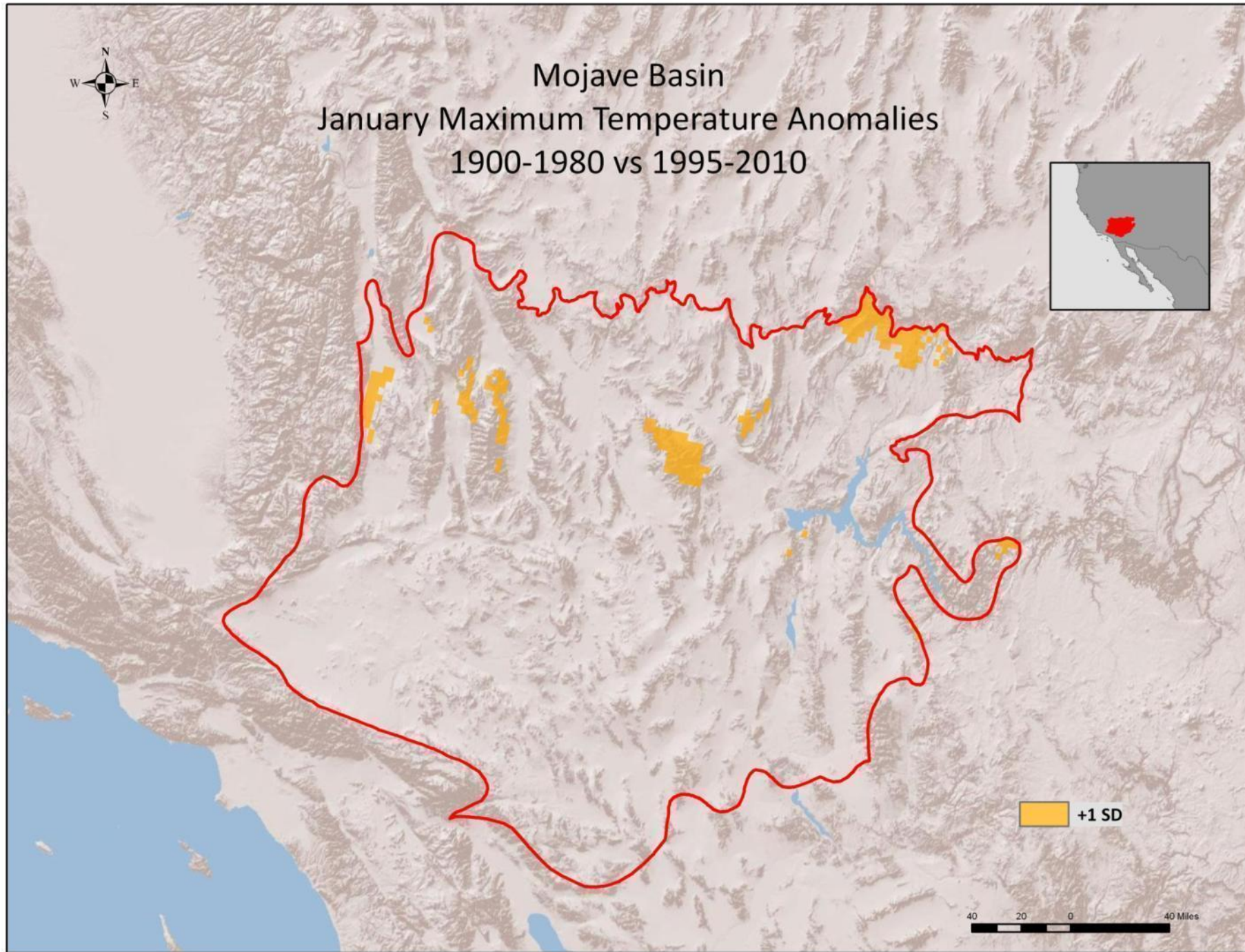
Mojave Basin

January Maximum Temperature Anomalies 1900-1980 vs 1995-2010



+1 SD

40 20 0 40 Miles





Mojave Basin

January Minimum Temperature Anomalies 1900-1980 vs 1980-1995



 +1 SD

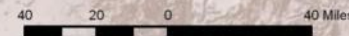
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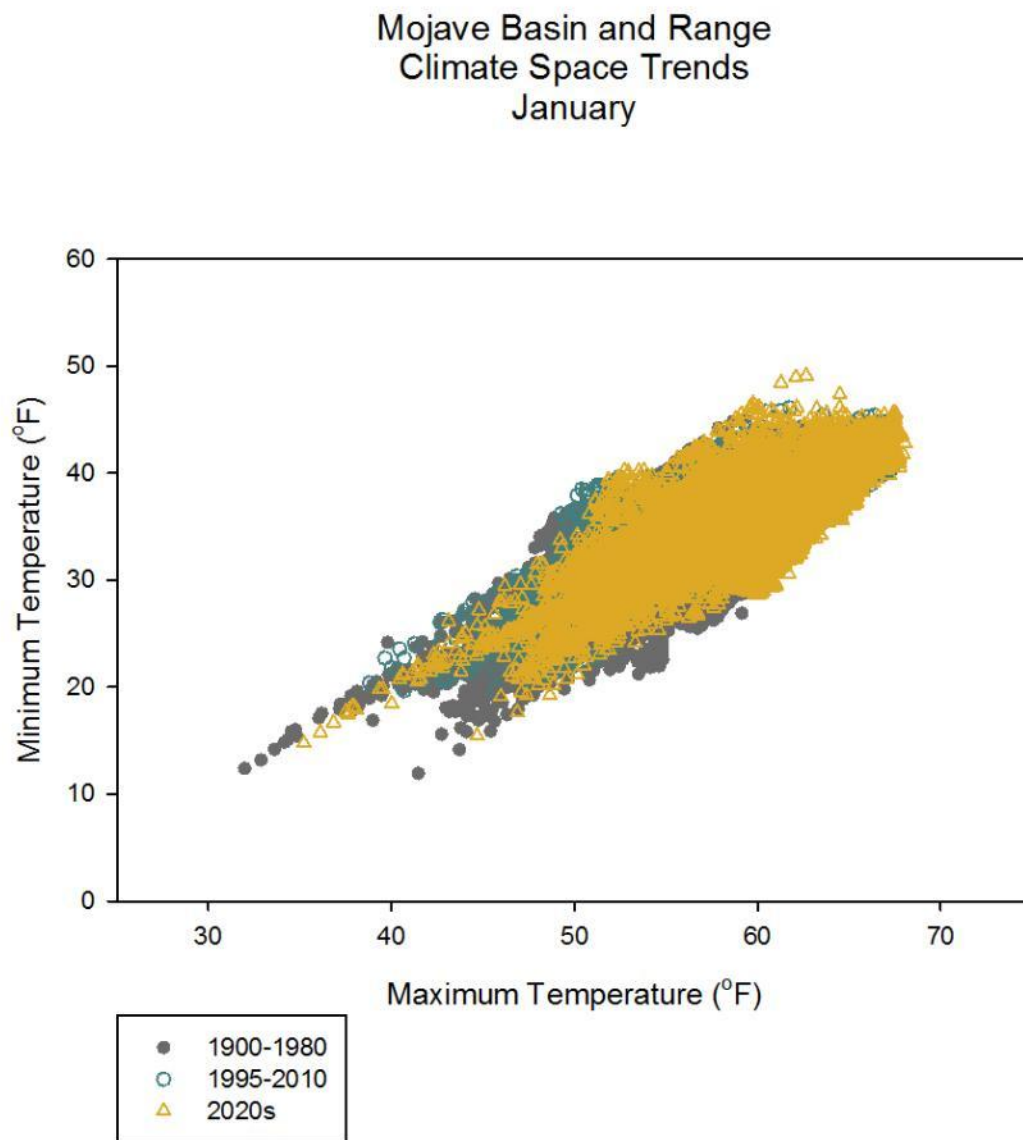


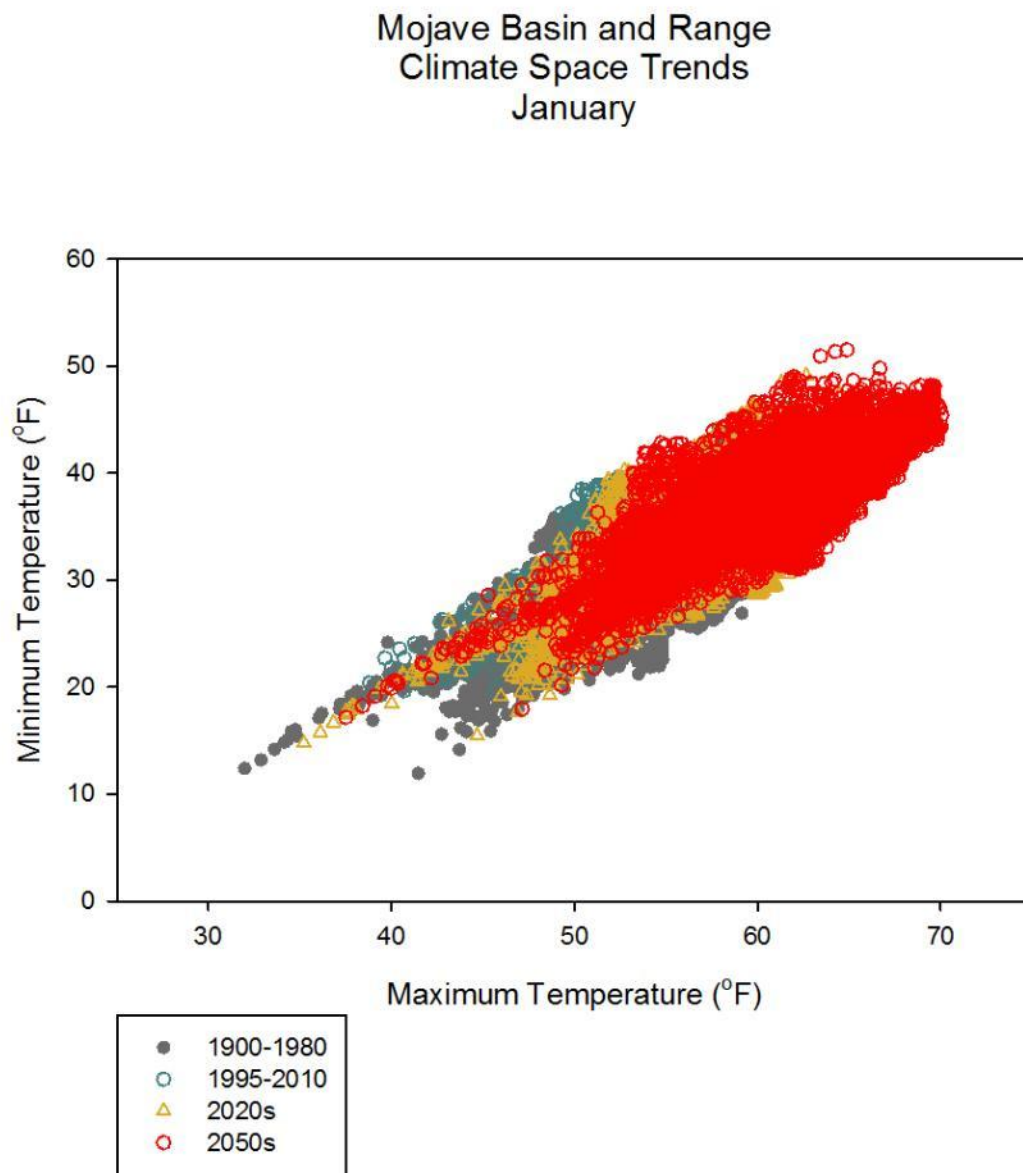


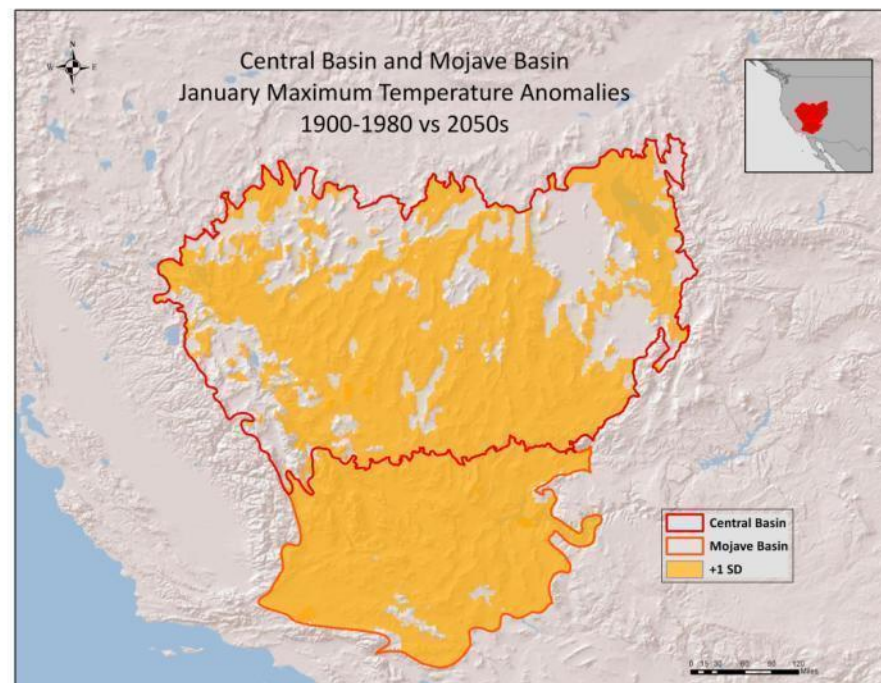
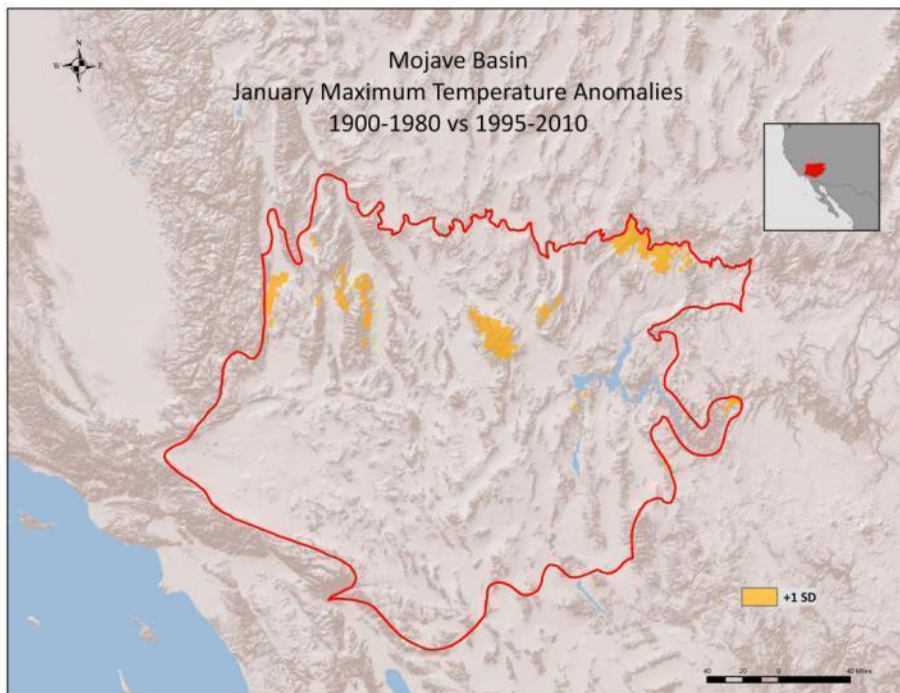
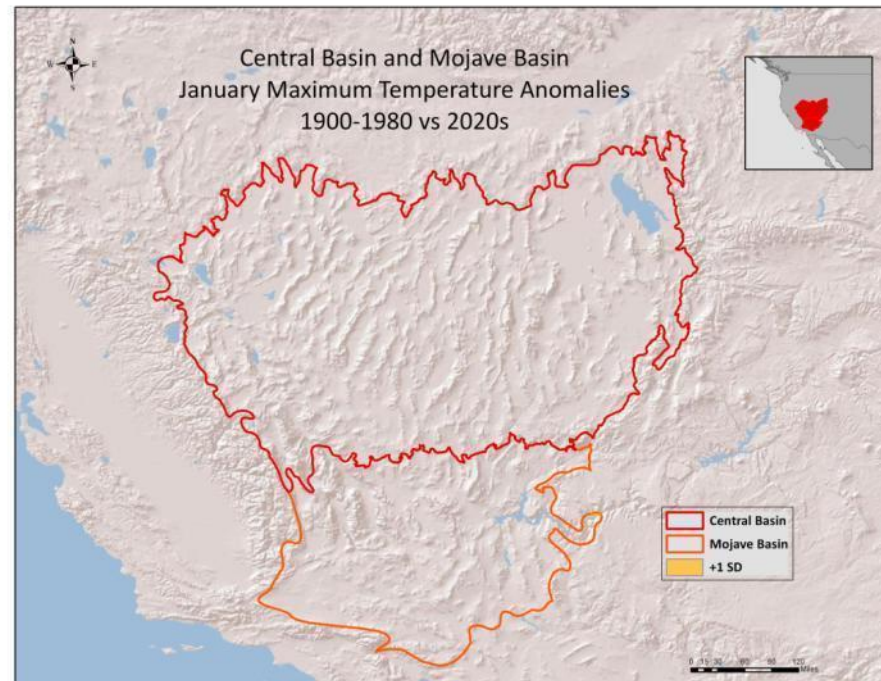
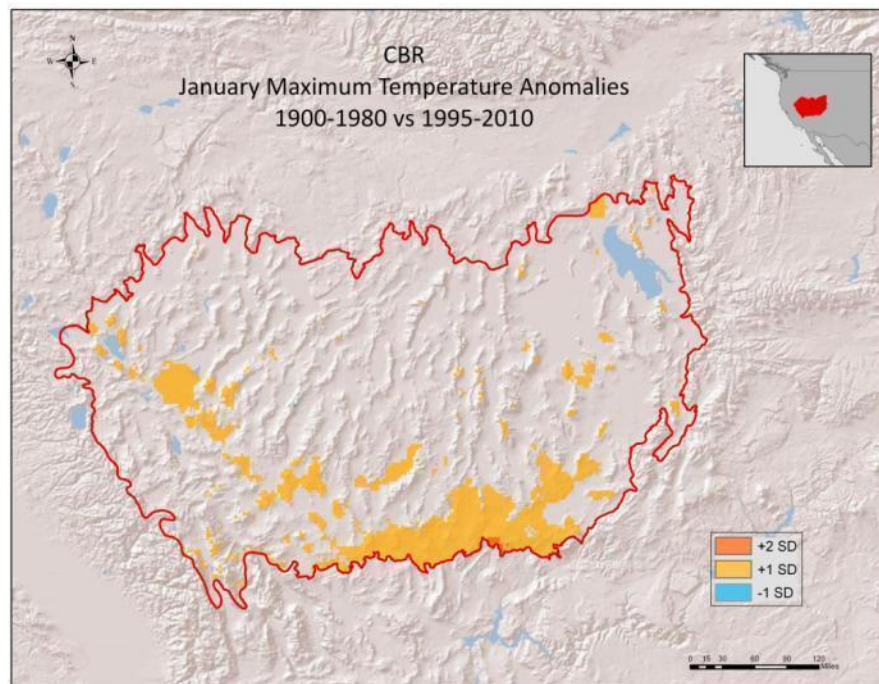
Mojave Basin

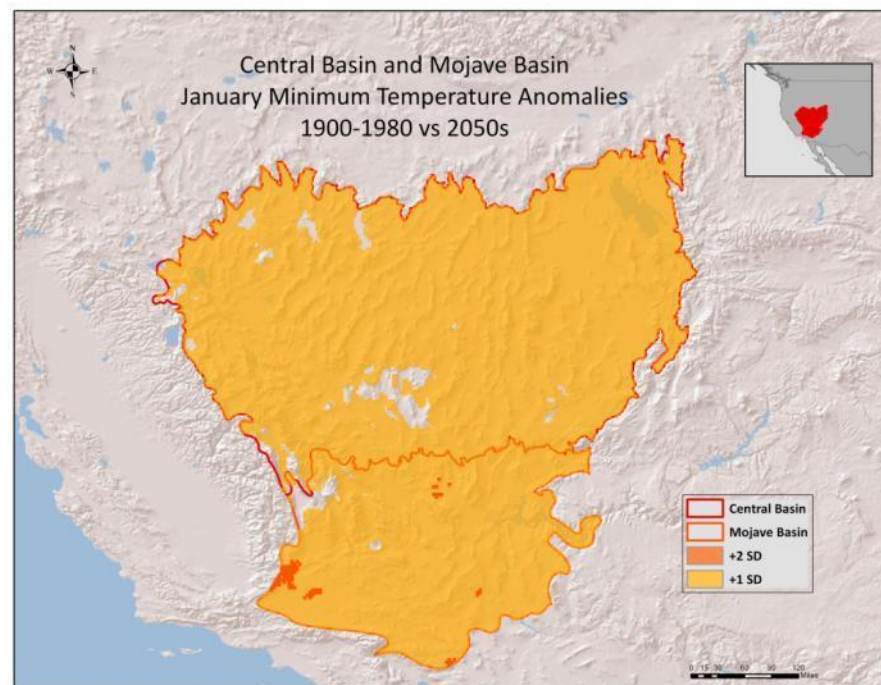
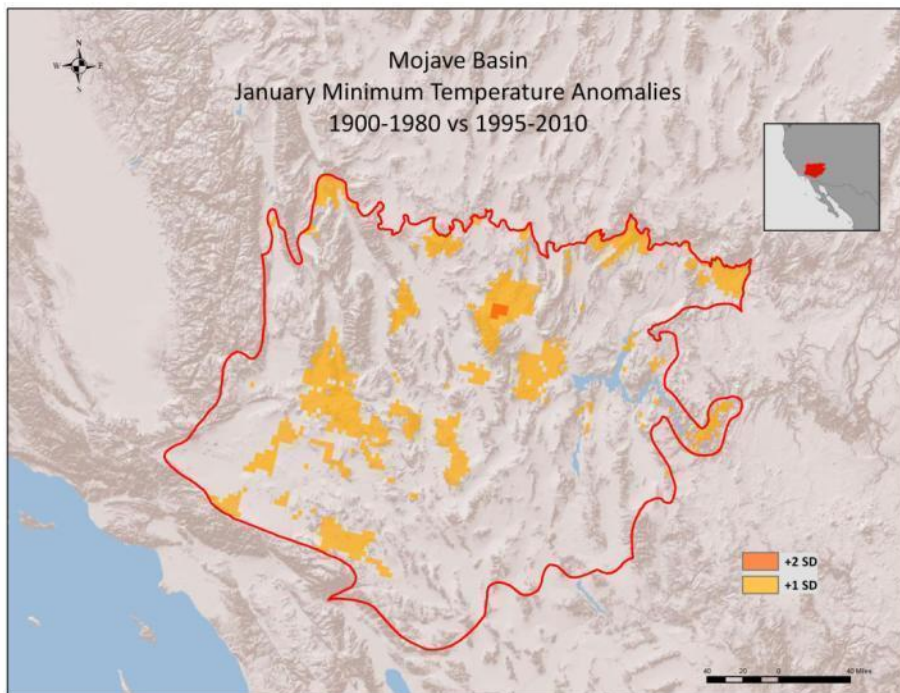
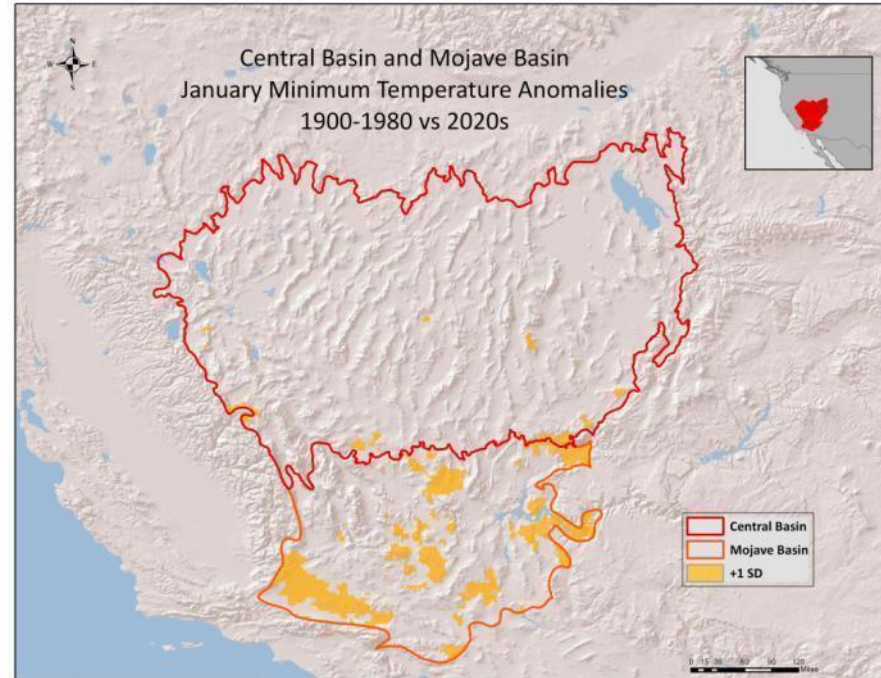
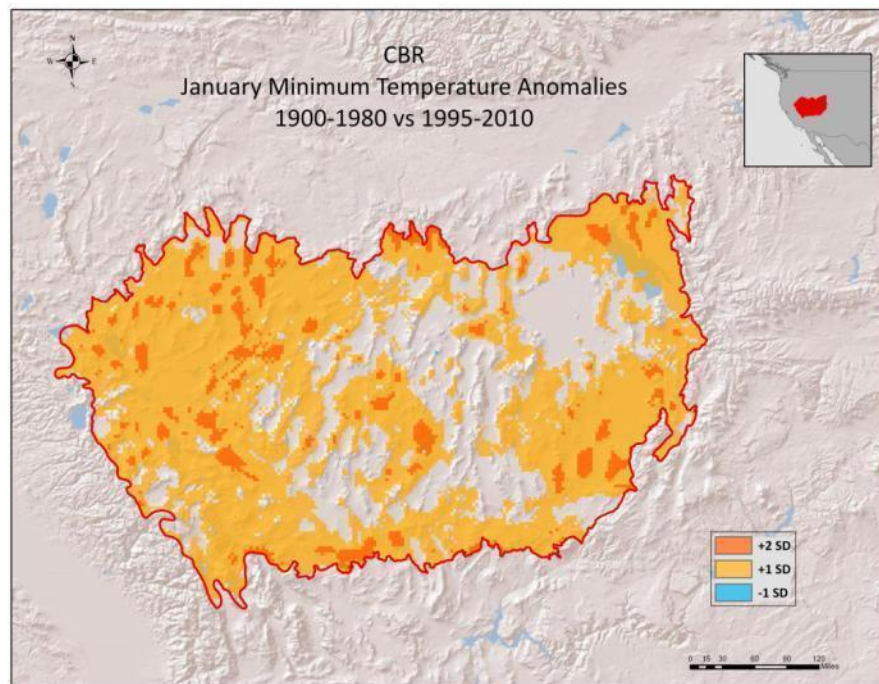
January Minimum Temperature Anomalies 1900-1980 vs 1995-2010

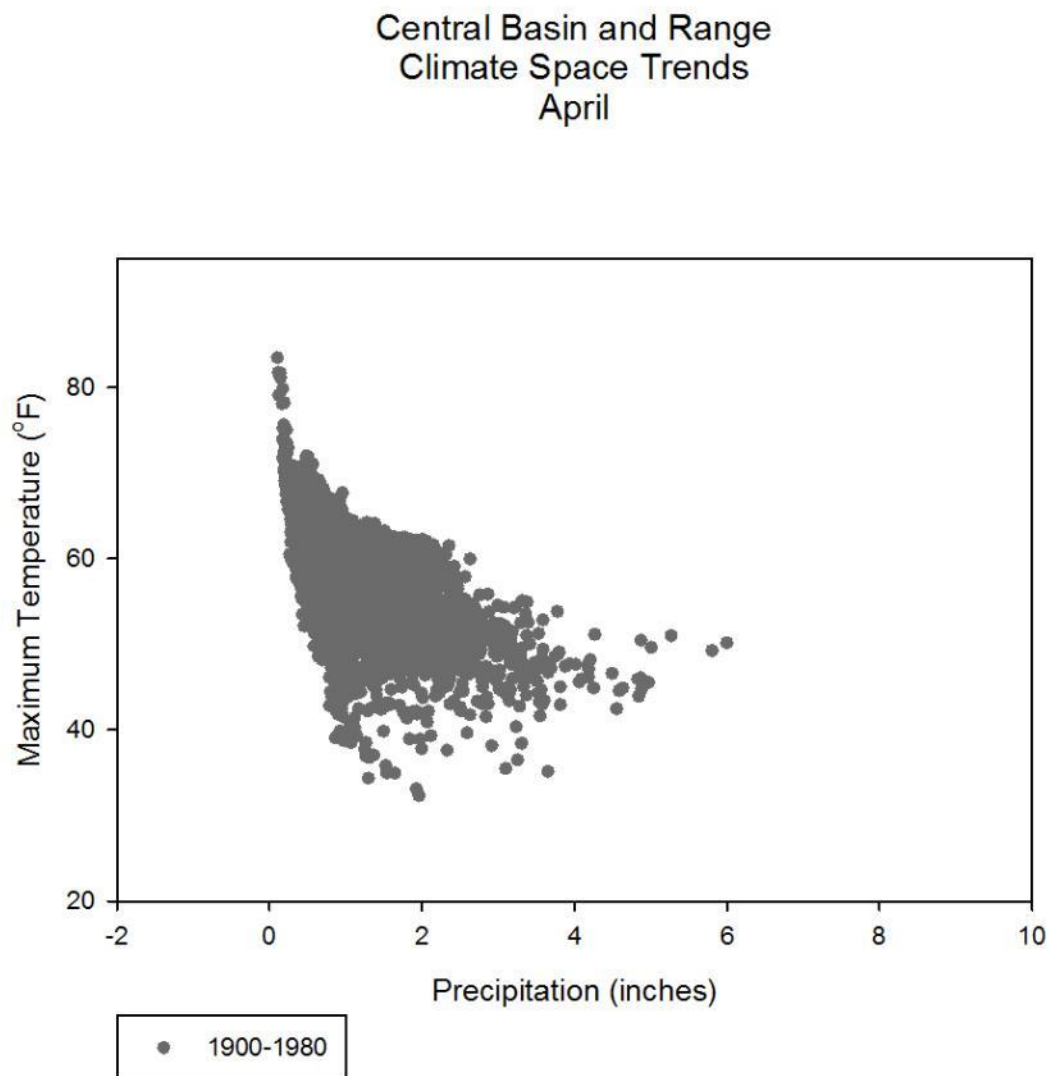


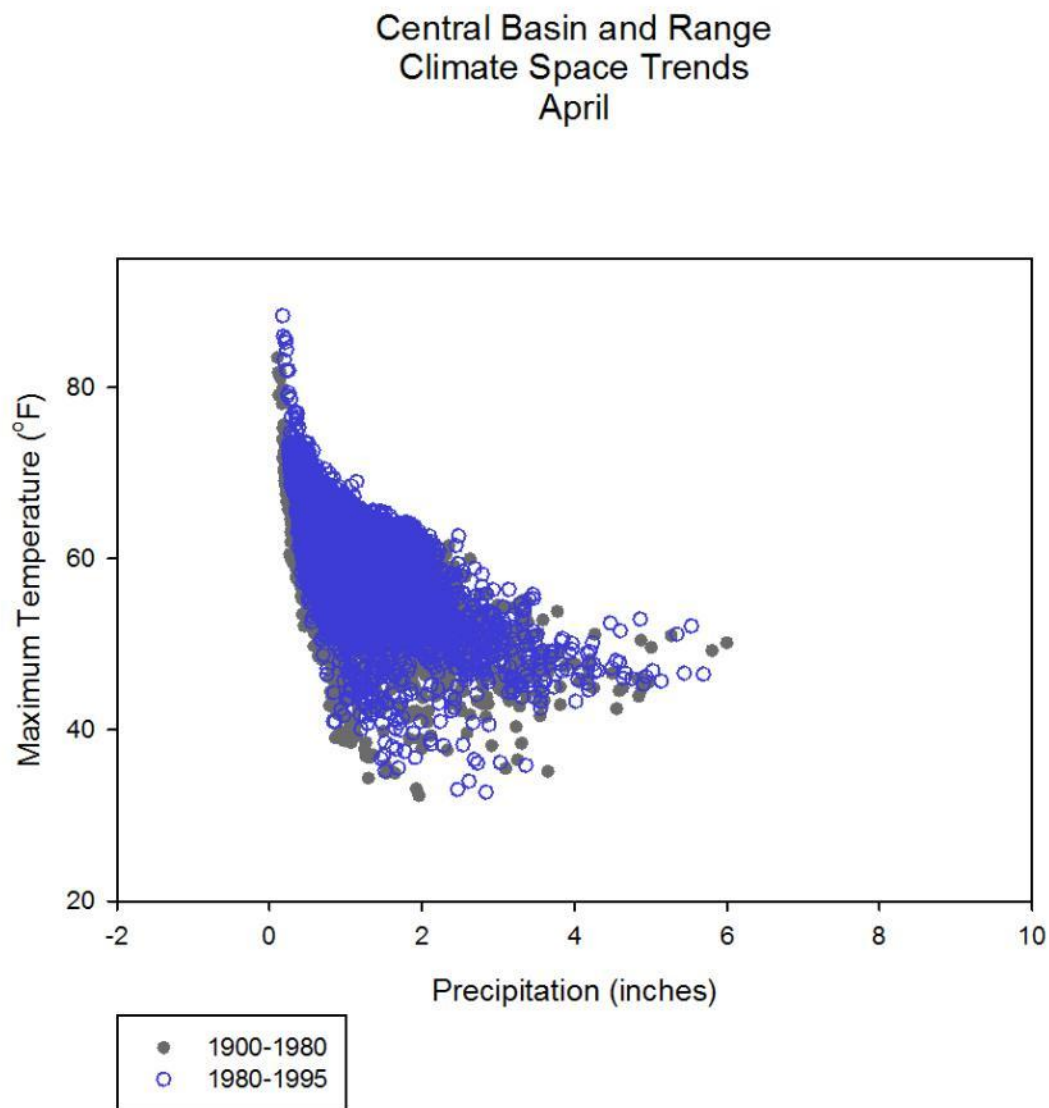


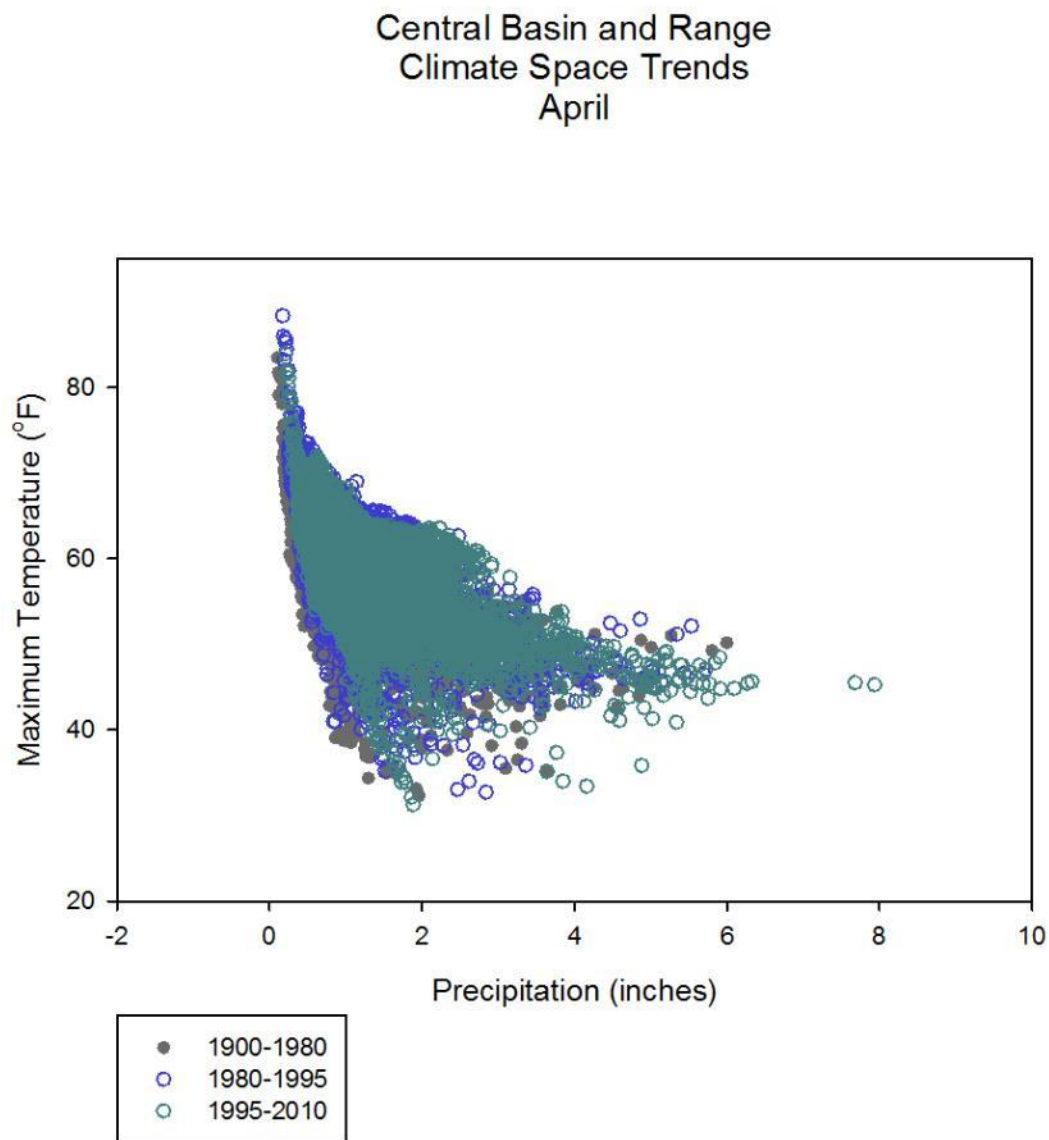


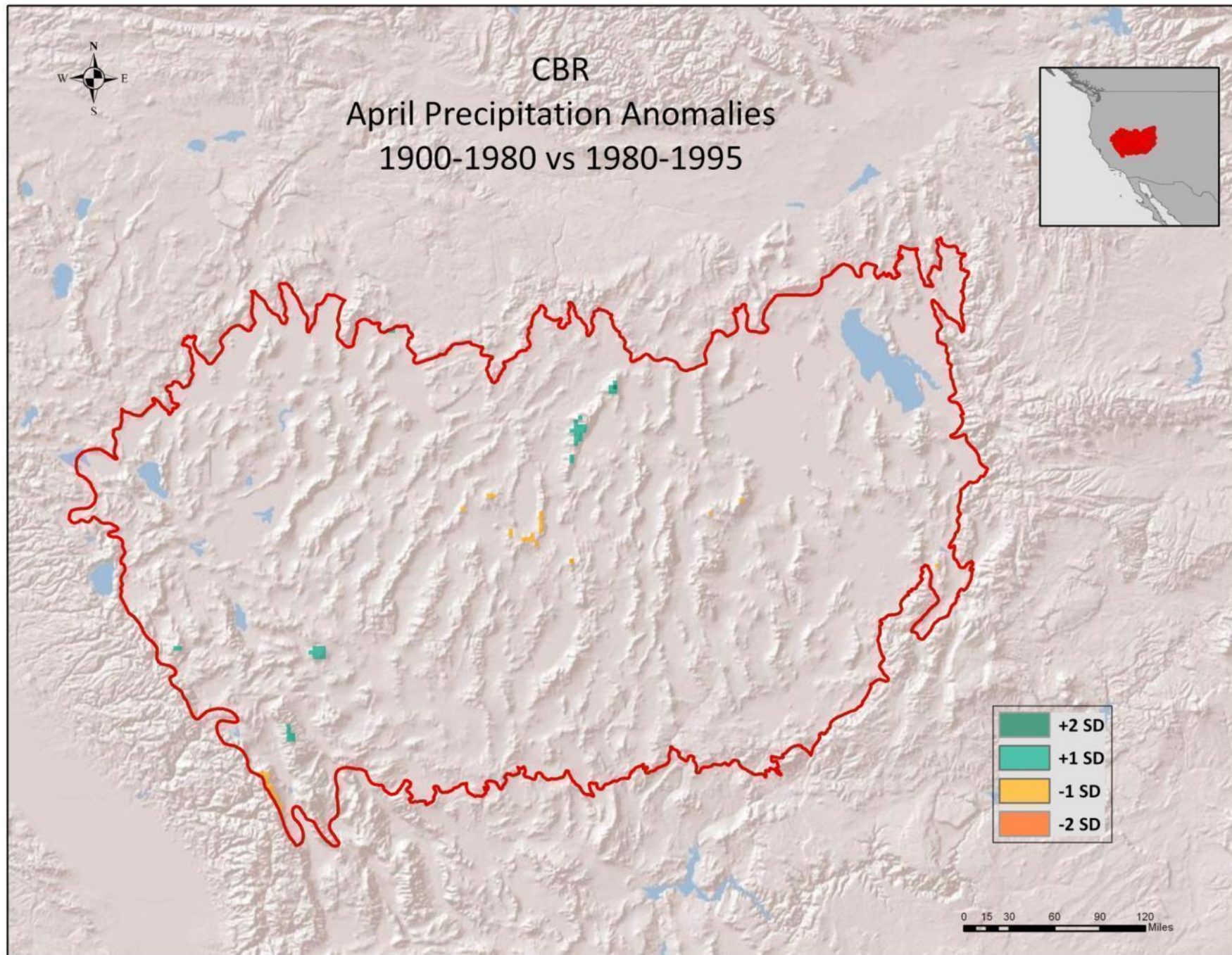






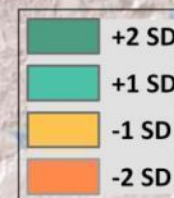






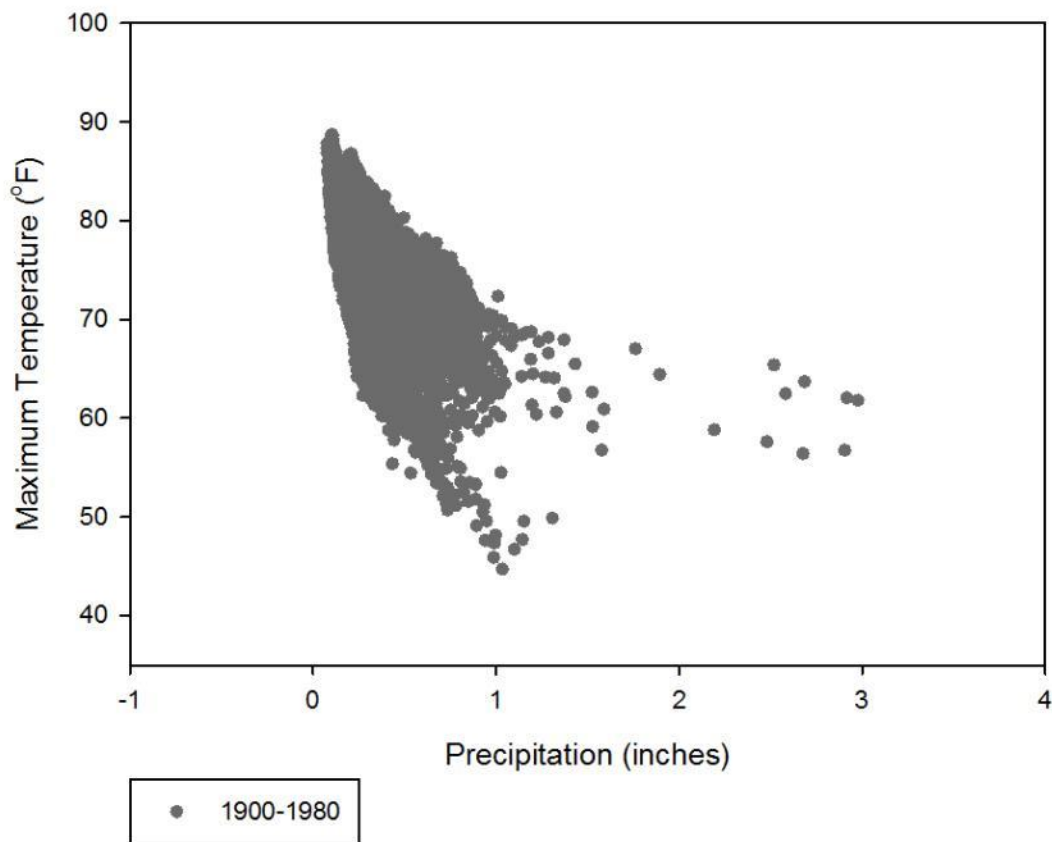


CBR
April Precipitation Anomalies
1900-1980 vs 1995-2010

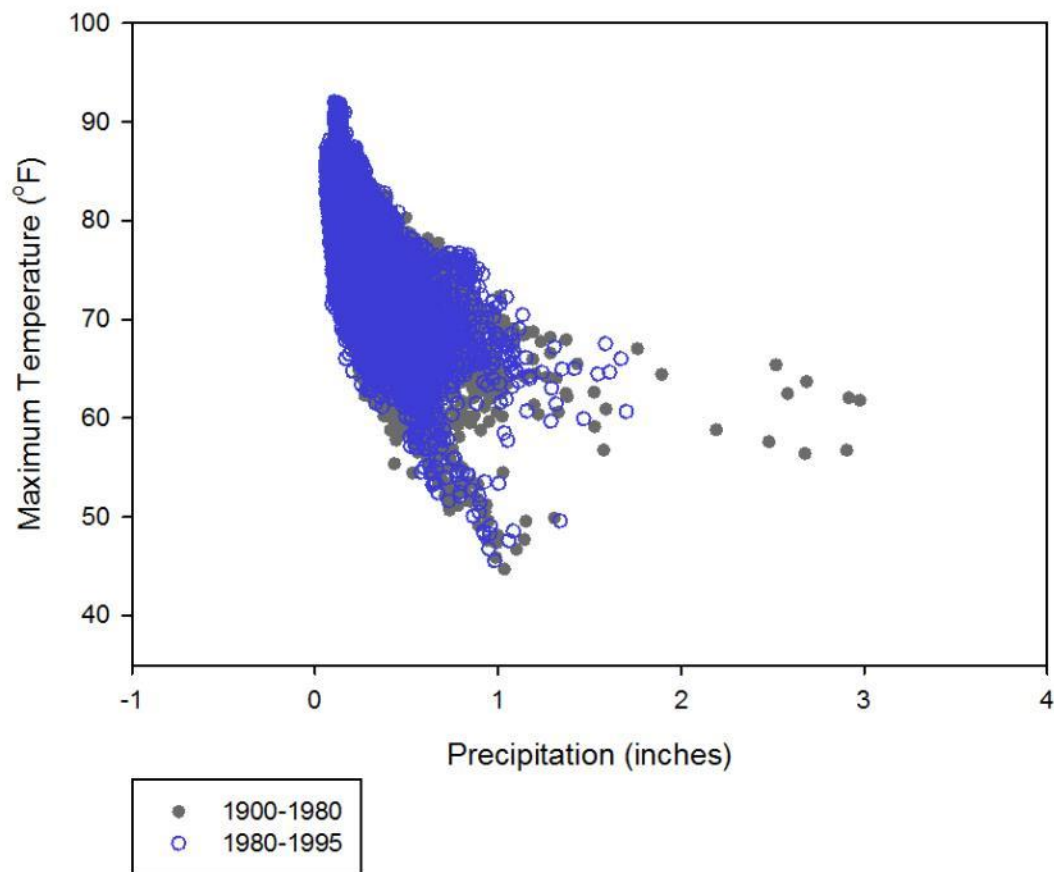


0 15 30 60 90 120
Miles

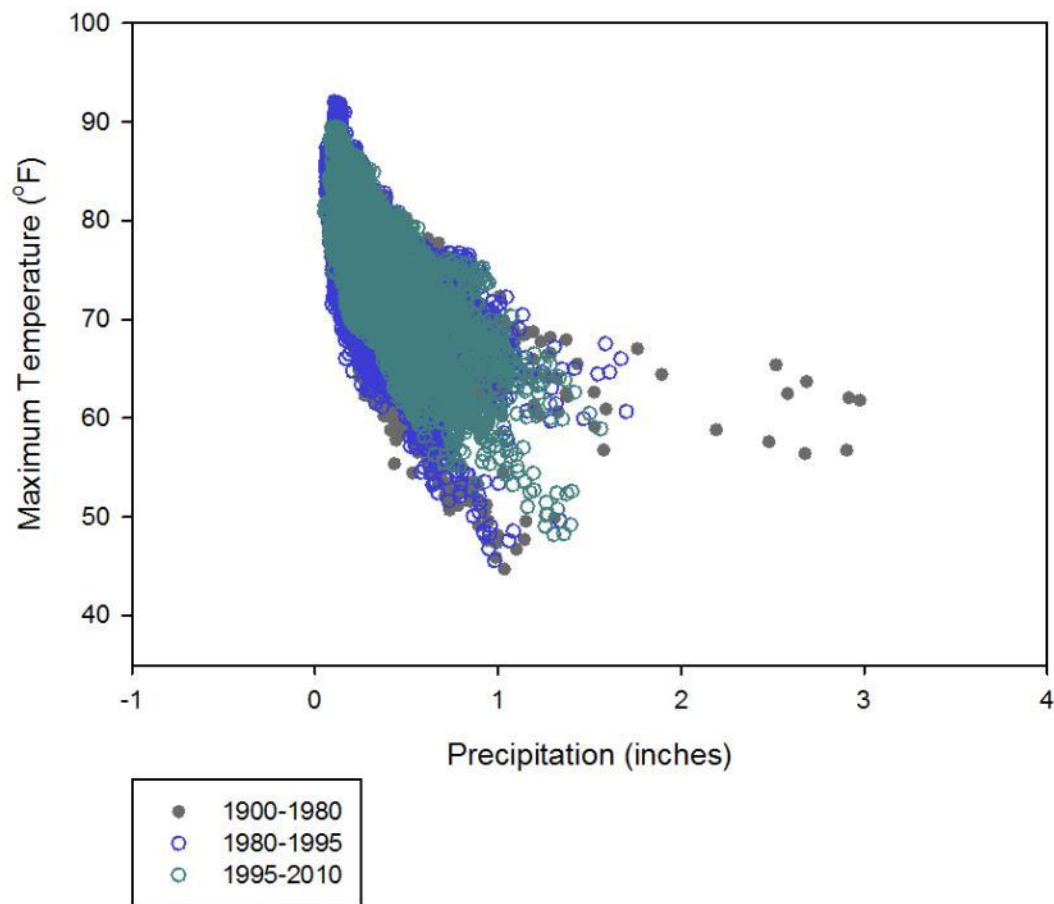
Mojave Basin and Range
Climate Space Trends
April



Mojave Basin and Range
Climate Space Trends
April



Mojave Basin and Range
Climate Space Trends
April

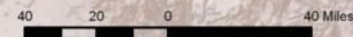




Mojave Basin

April Precipitation Anomalies

1900-1980 vs 1980-1995

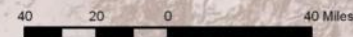
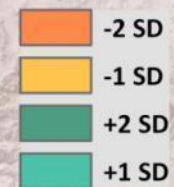




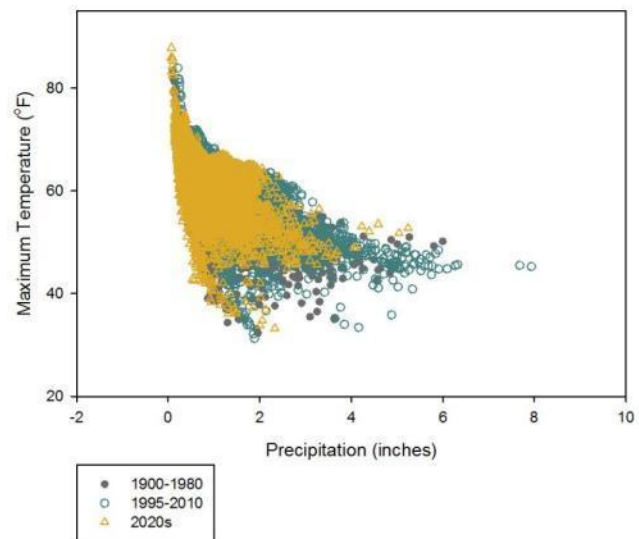
Mojave Basin

April Precipitation Anomalies

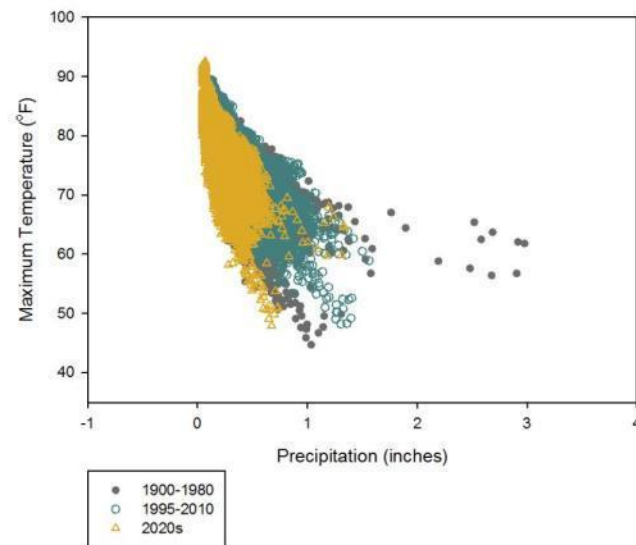
1900-1980 vs 1995-2010



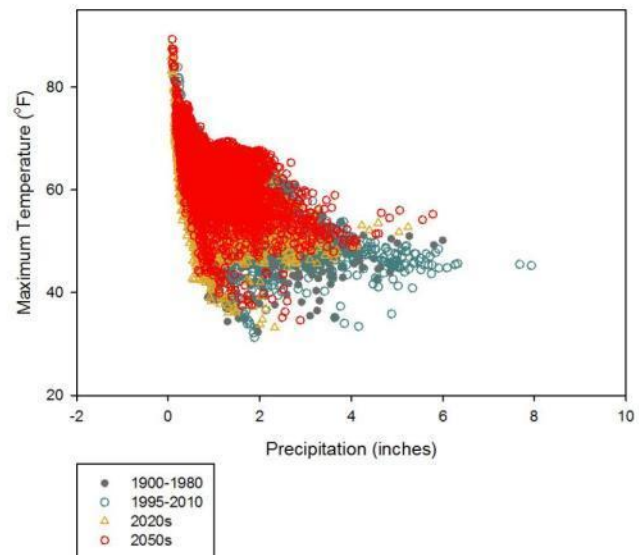
Central Basin and Range
Climate Space Trends
April



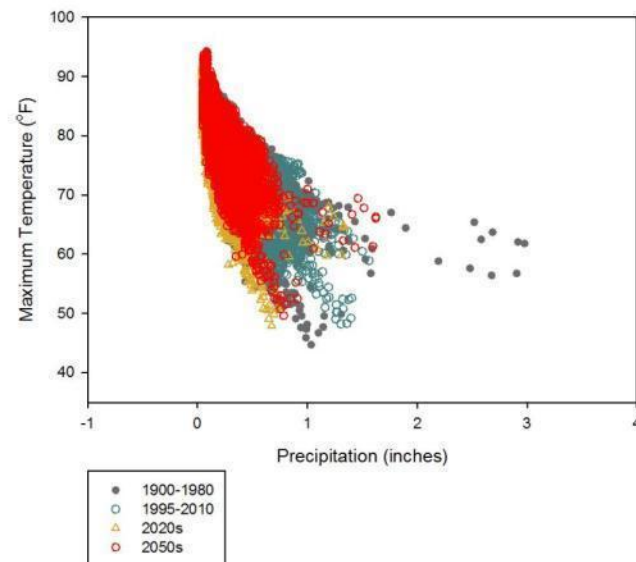
Mojave Basin and Range
Climate Space Trends
April



Central Basin and Range
Climate Space Trends
April

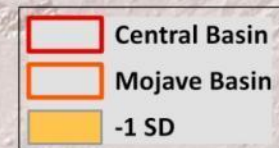


Mojave Basin and Range
Climate Space Trends
April





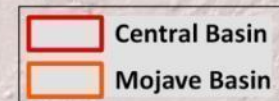
Central Basin and Mojave Basin April Precipitation Anomalies 1900-1980 vs 2020s



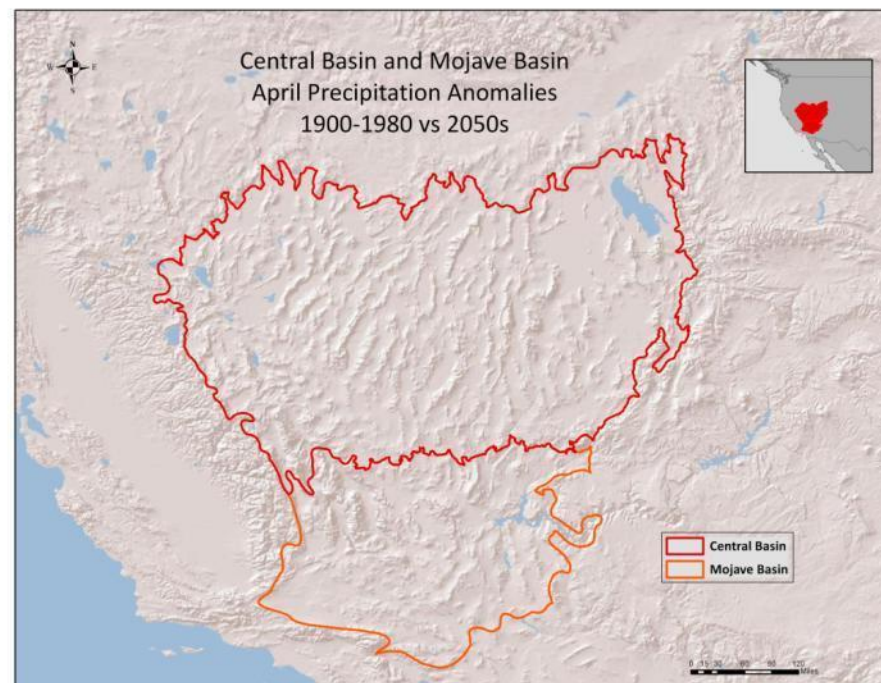
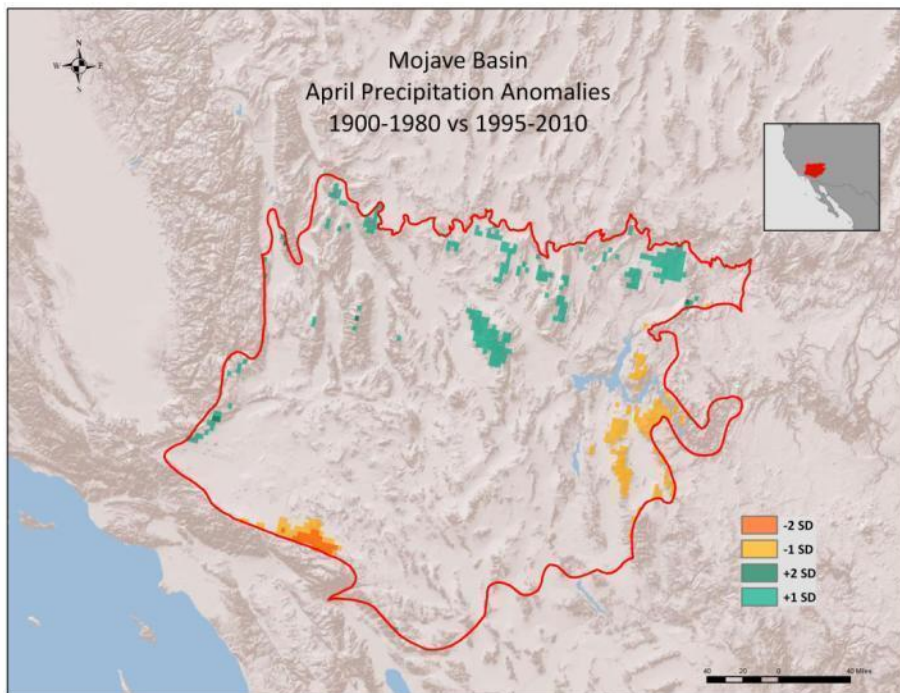
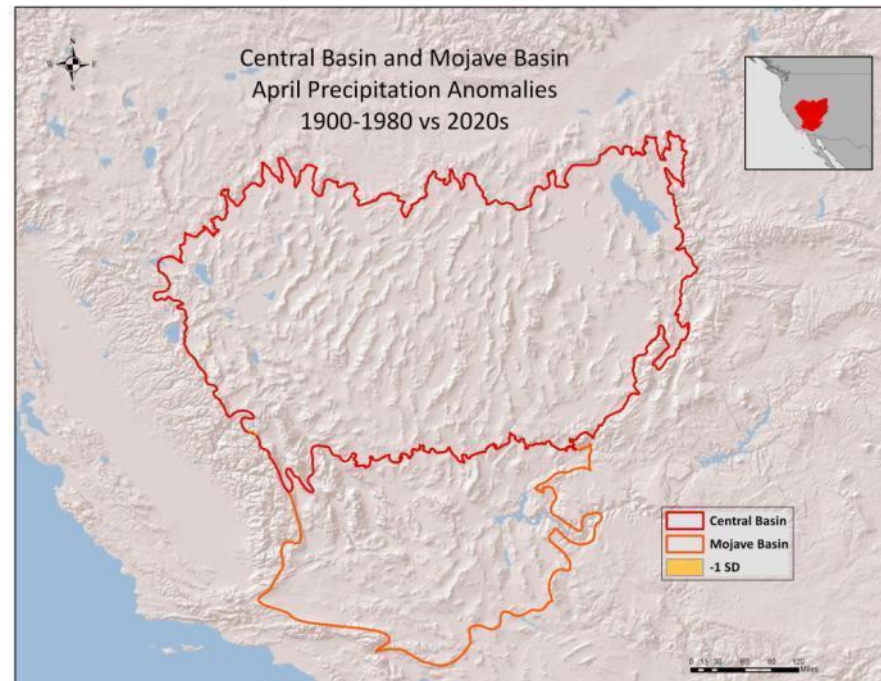
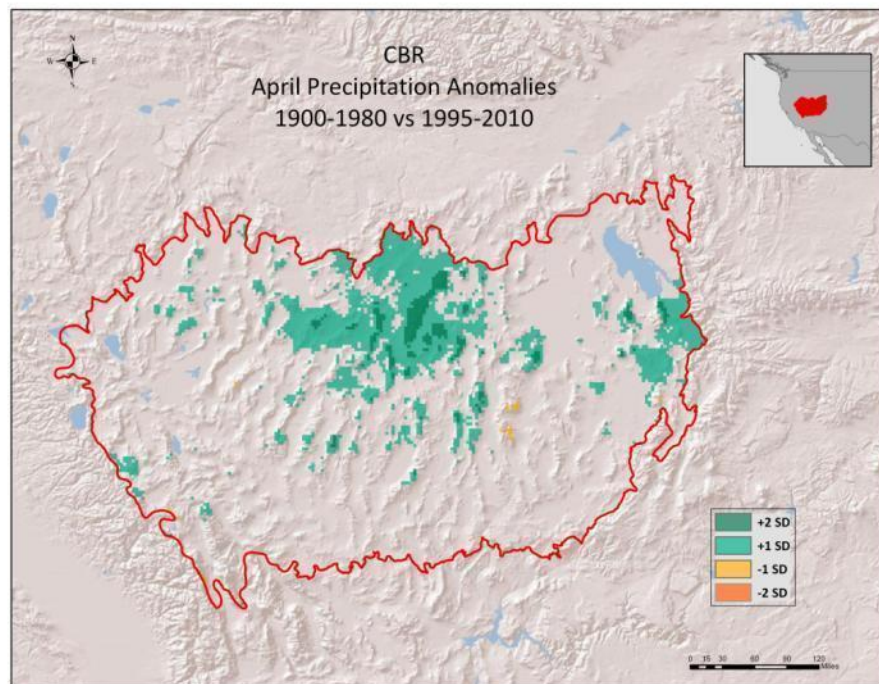
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Miles

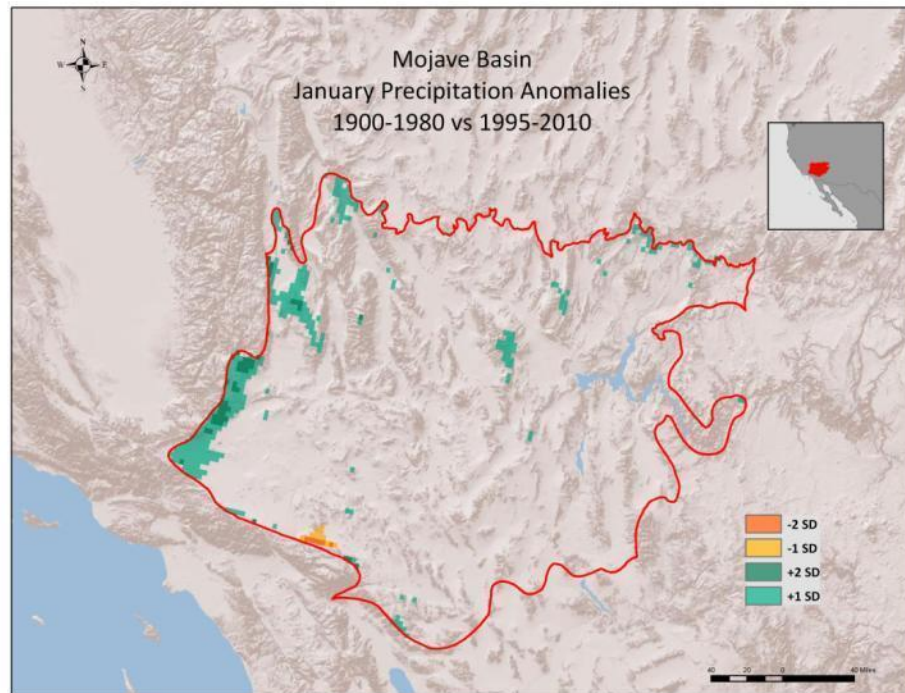
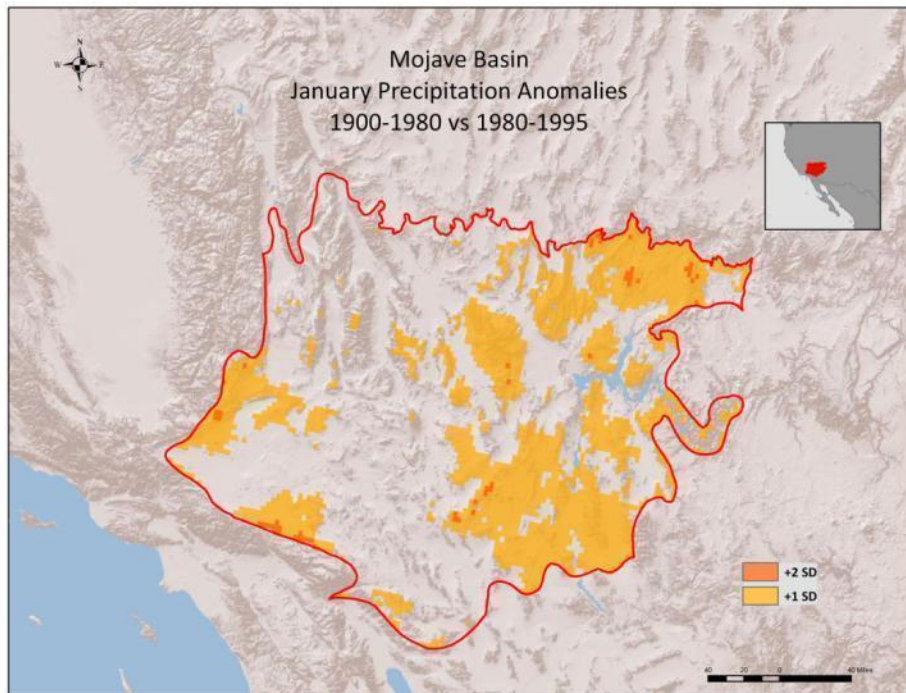


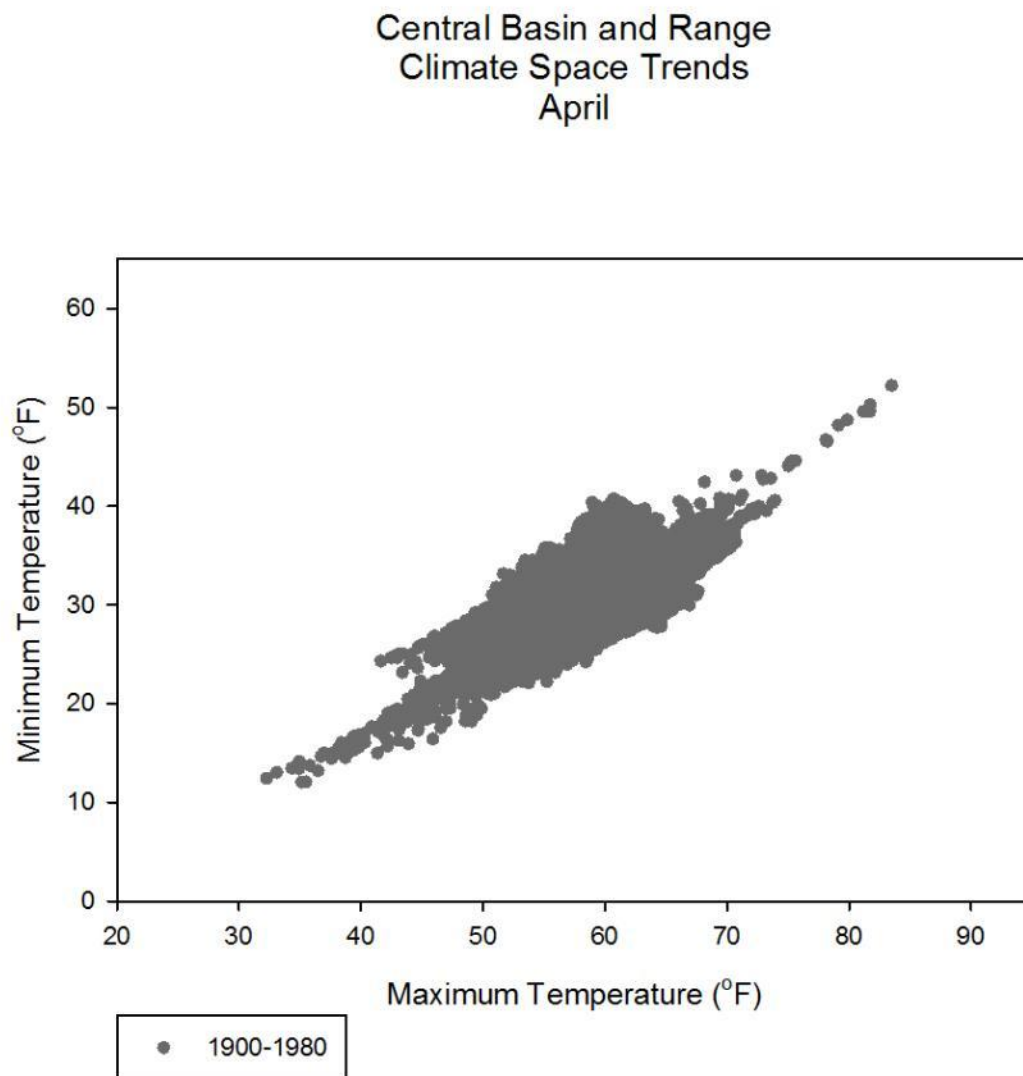
Central Basin and Mojave Basin April Precipitation Anomalies 1900-1980 vs 2050s

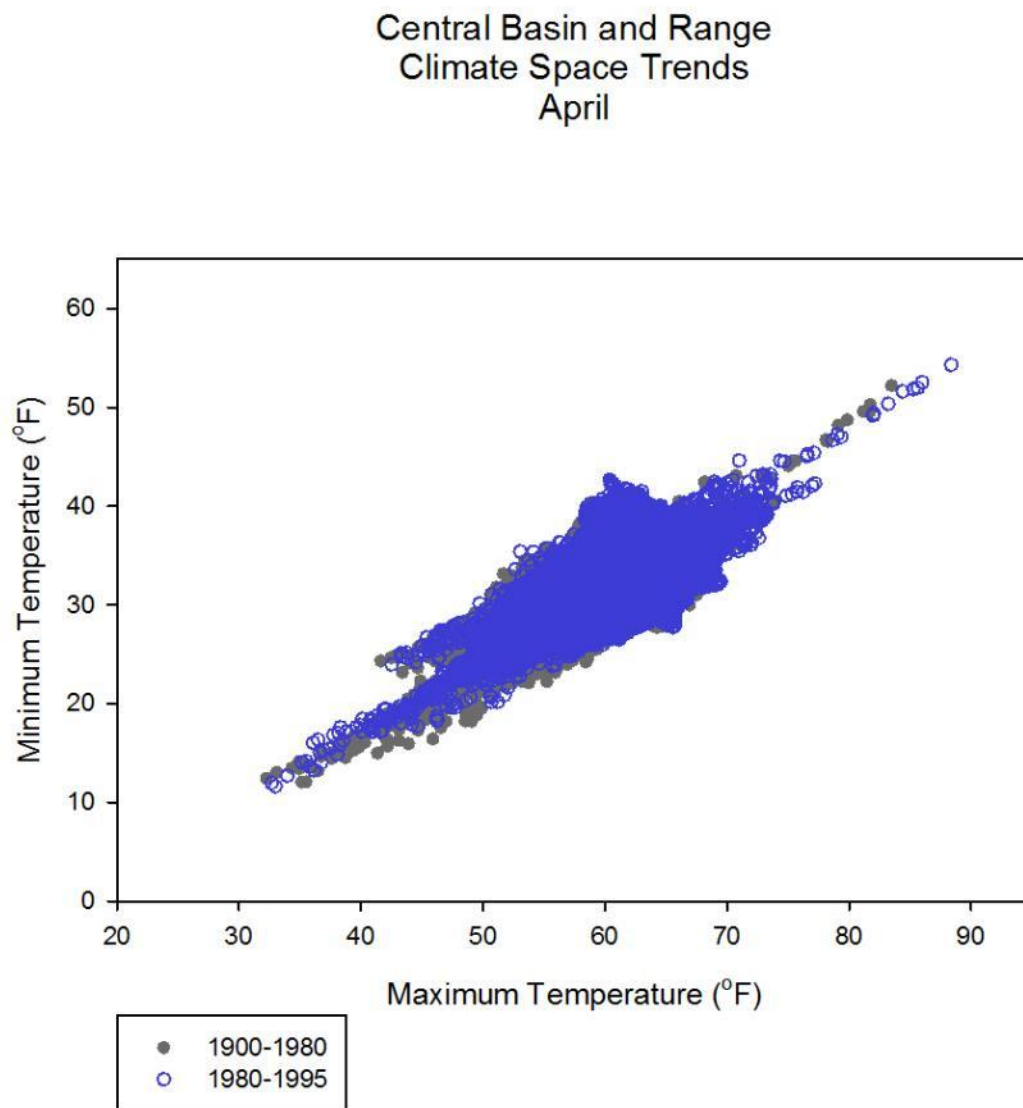


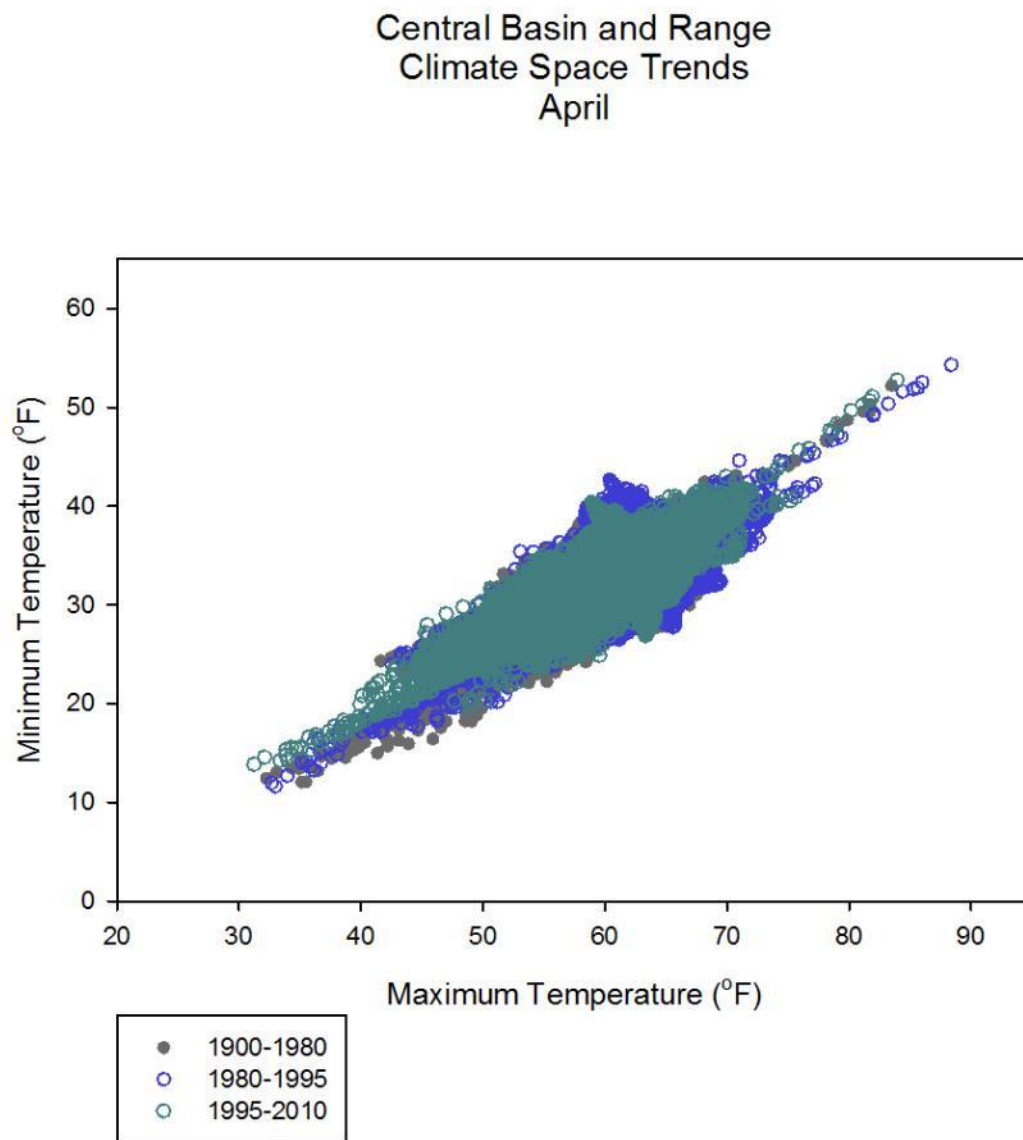
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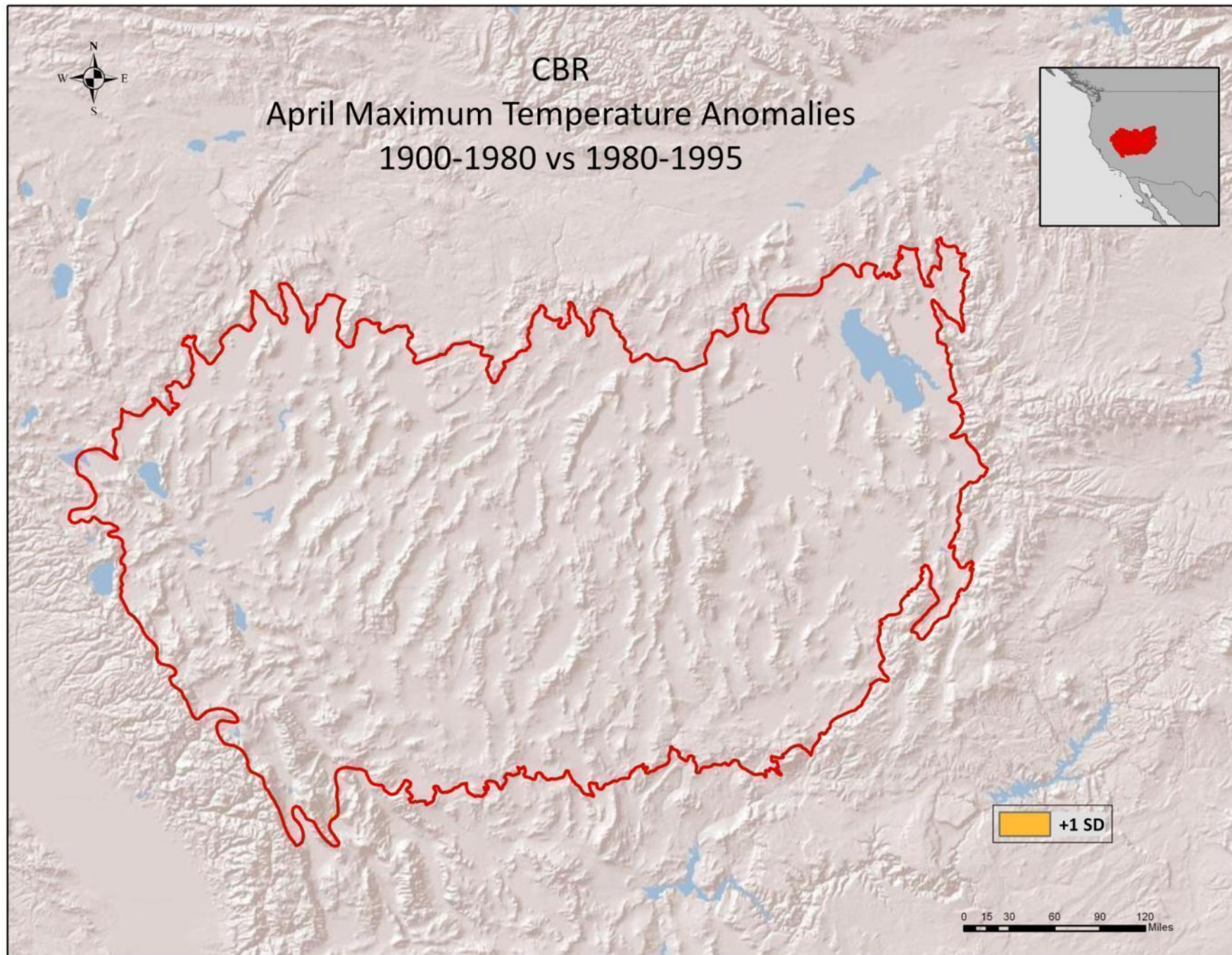


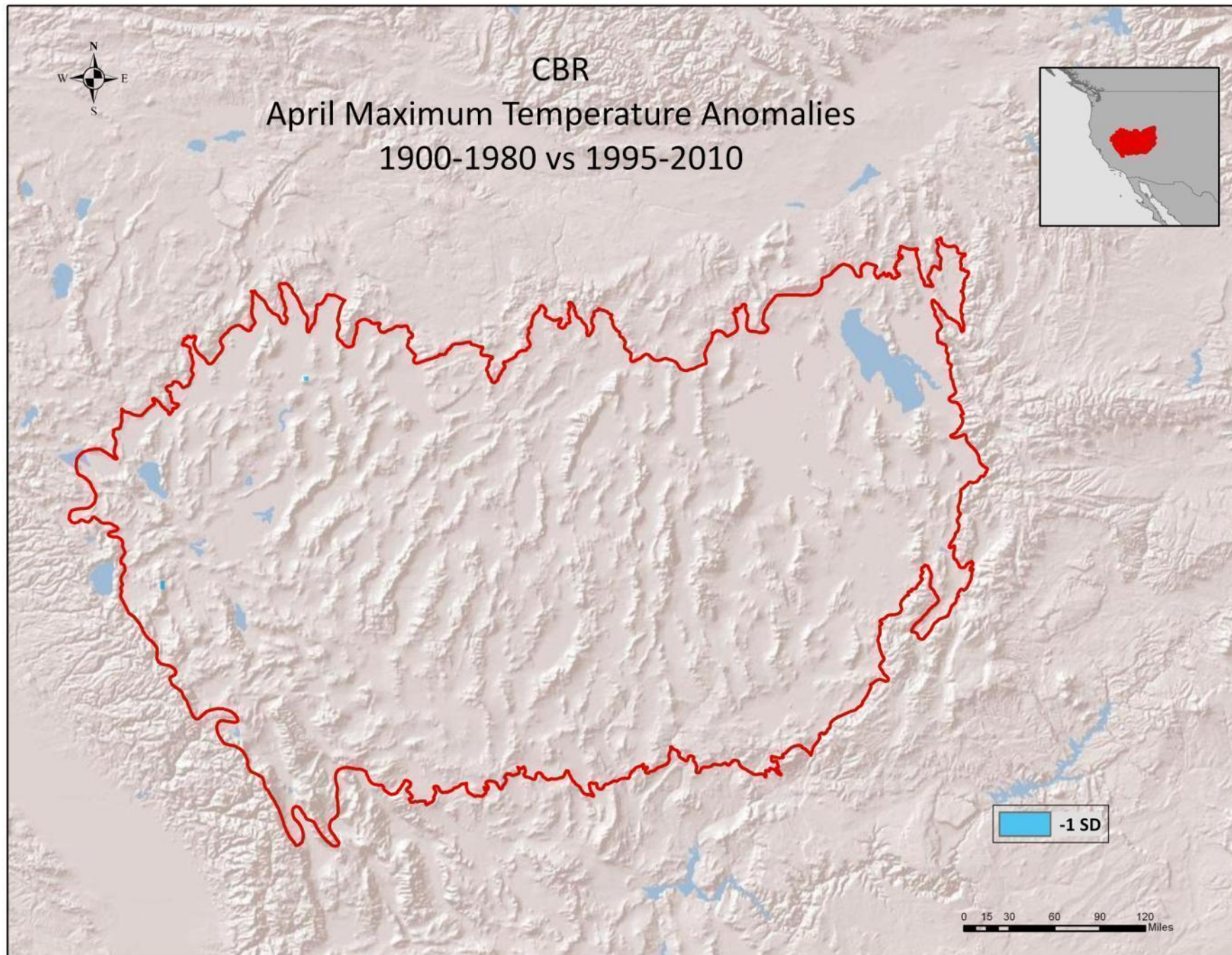


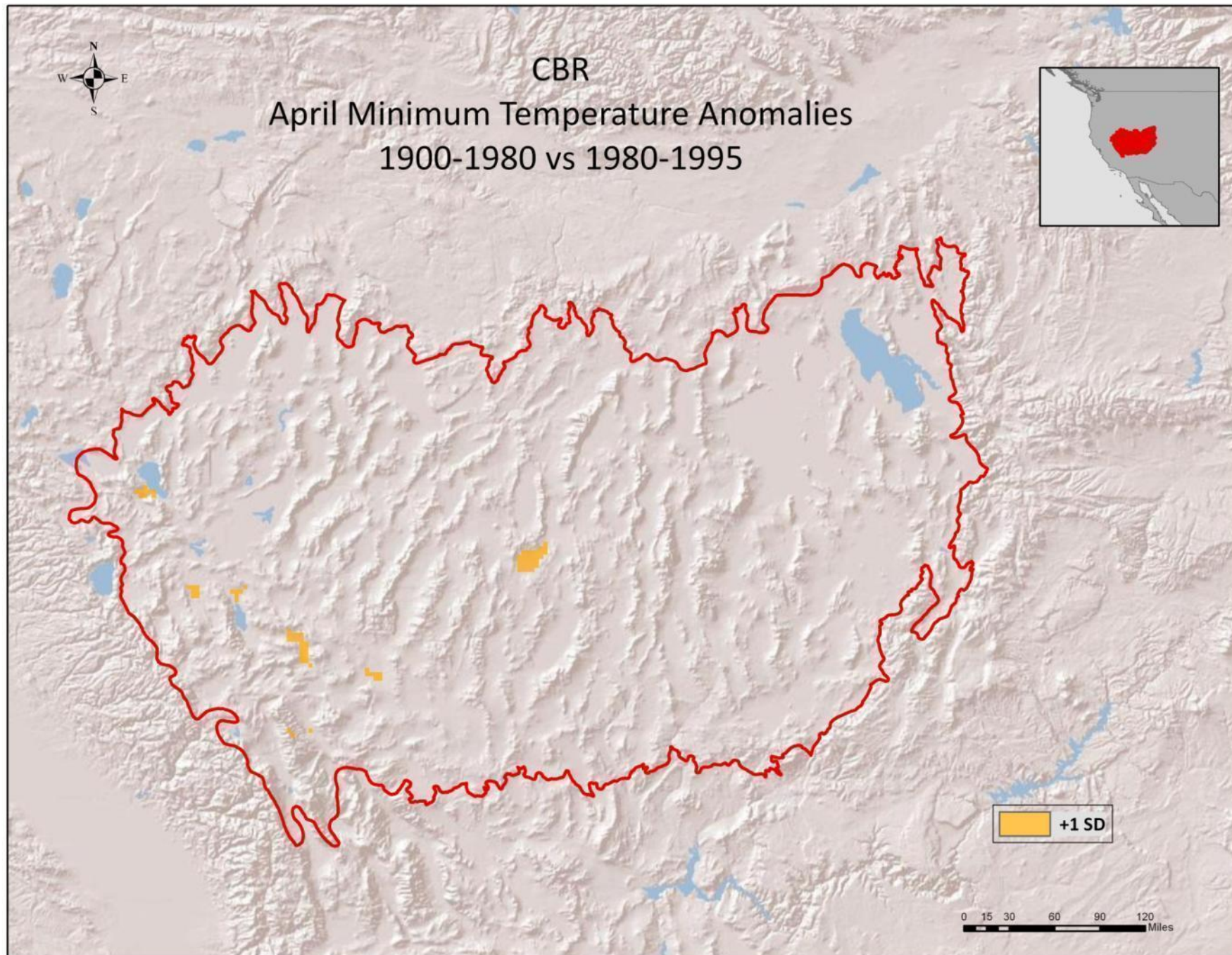


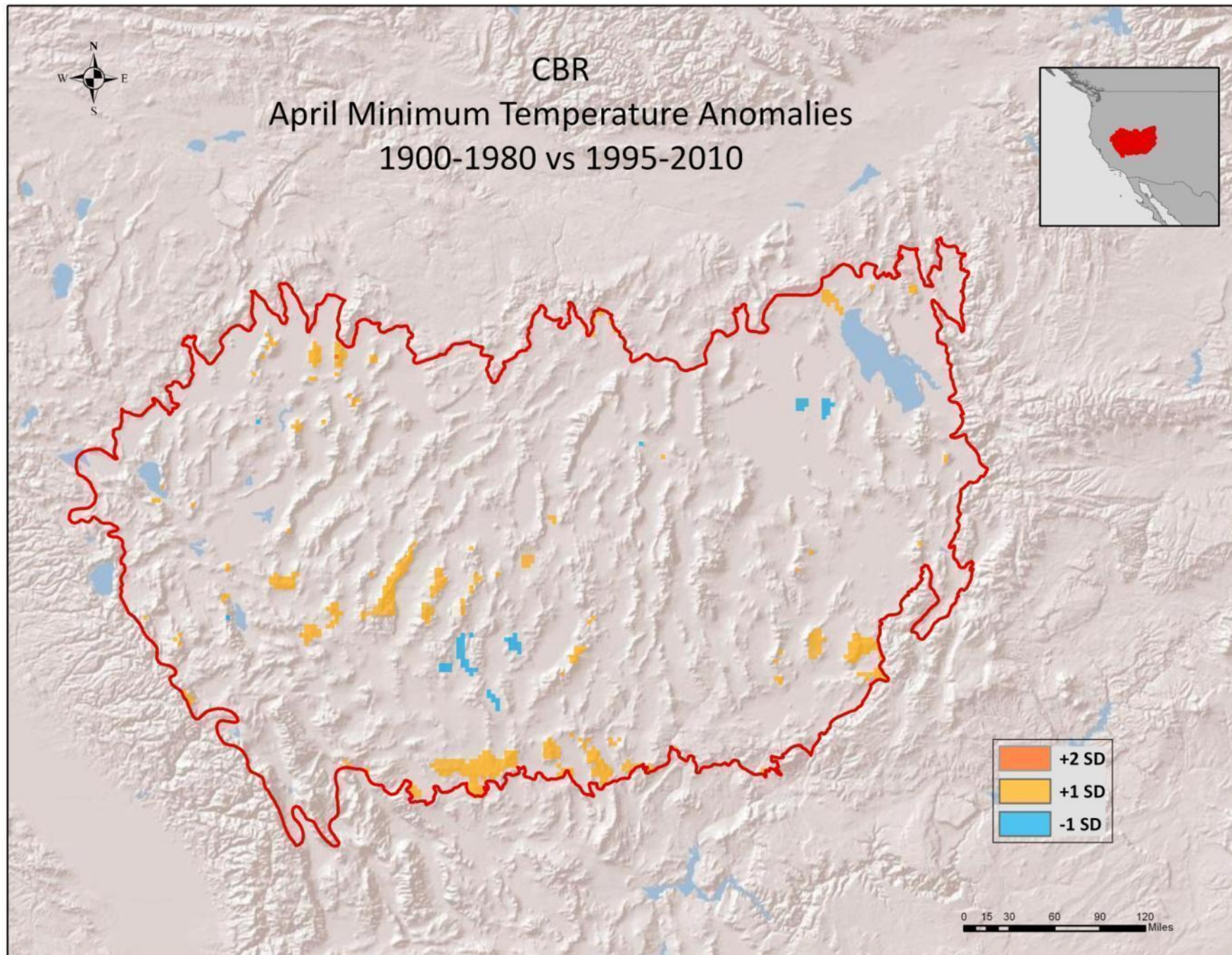


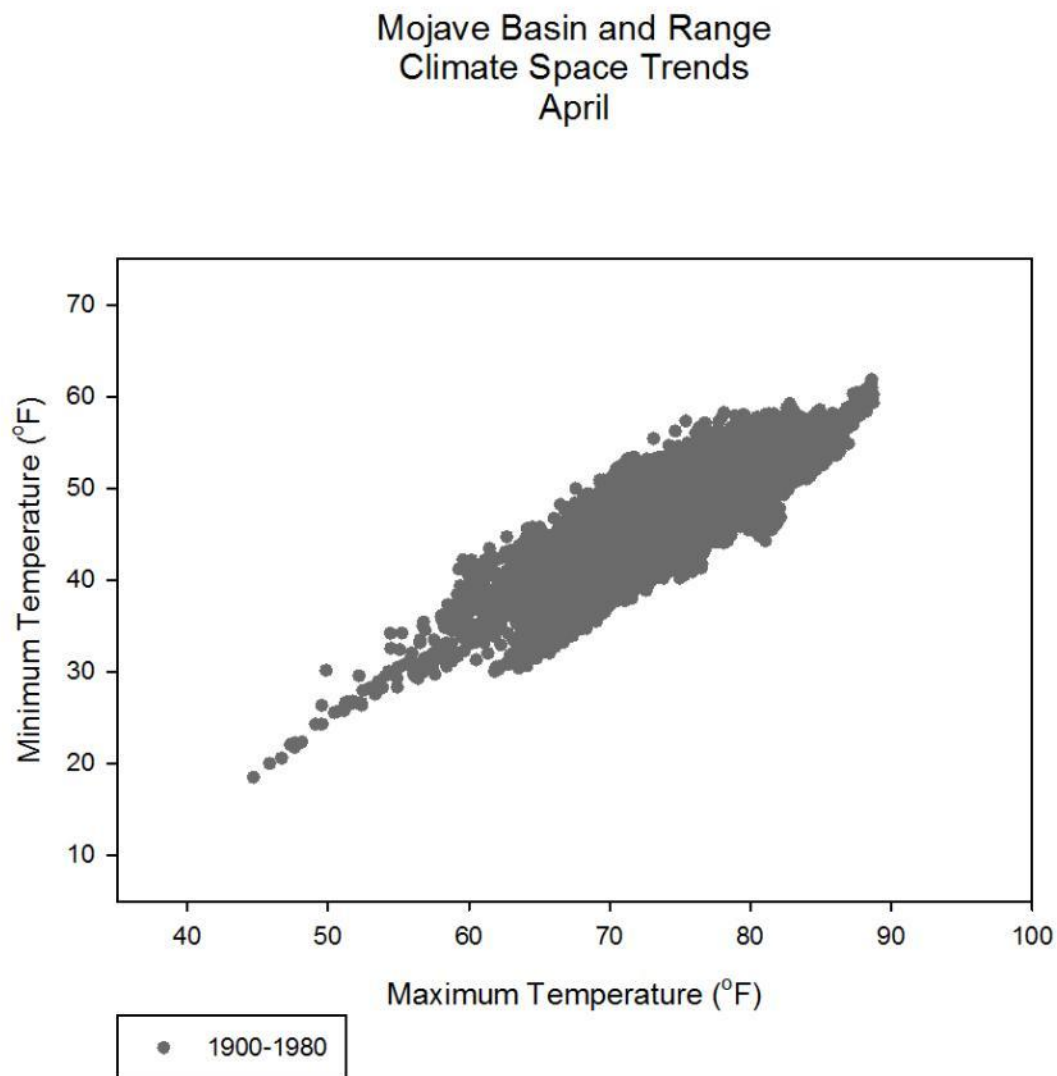




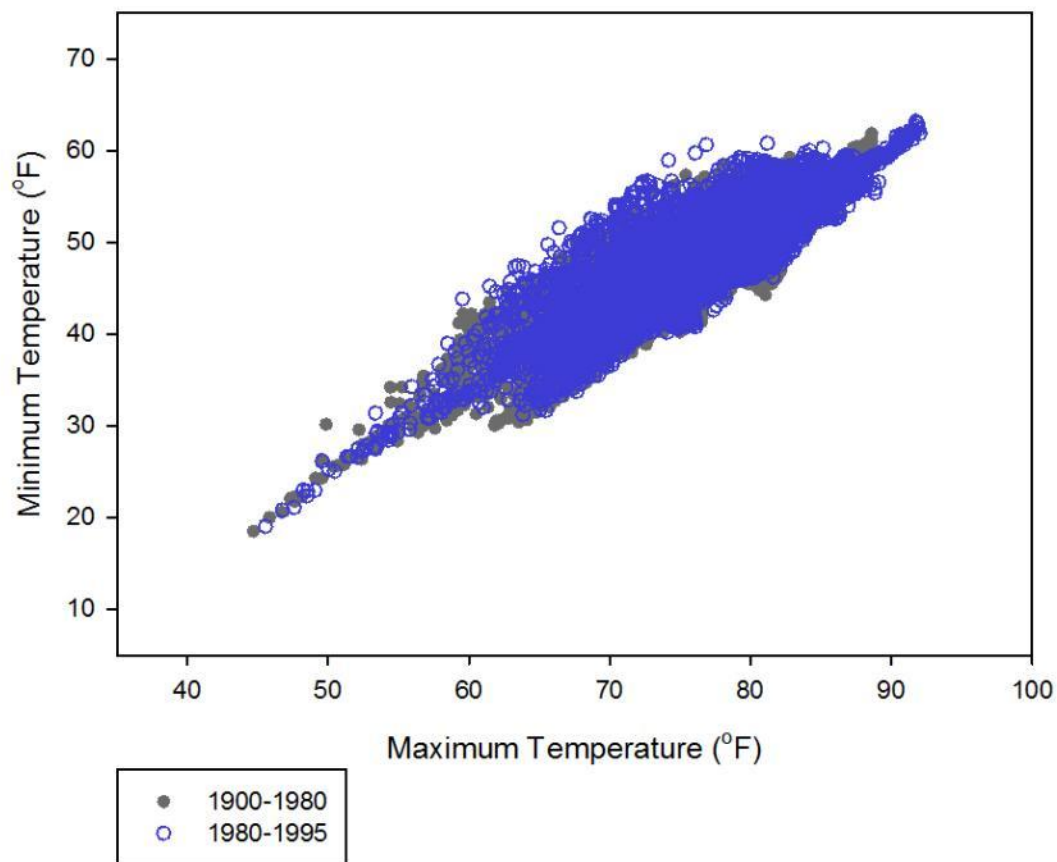




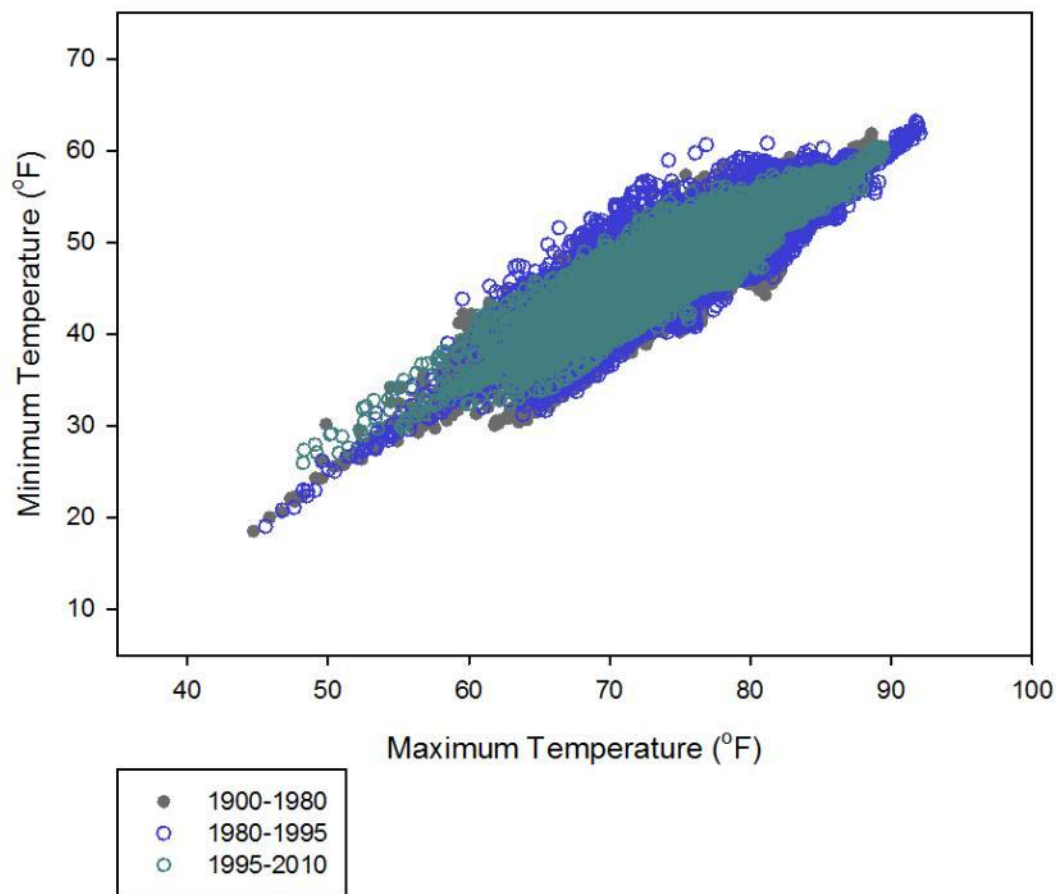




Mojave Basin and Range
Climate Space Trends
April



Mojave Basin and Range
Climate Space Trends
April





Mojave Basin

April Maximum Temperature Anomalies 1900-1980 vs 1980-1995



+1 SD

40 20 0 40 Miles



Mojave Basin

April Maximum Temperature Anomalies 1900-1980 vs 1995-2010



40 20 0 40 Miles



Mojave Basin

April Minimum Temperature Anomalies 1900-1980 vs 1980-1995



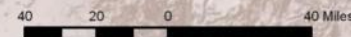
40 20 0 40 Miles



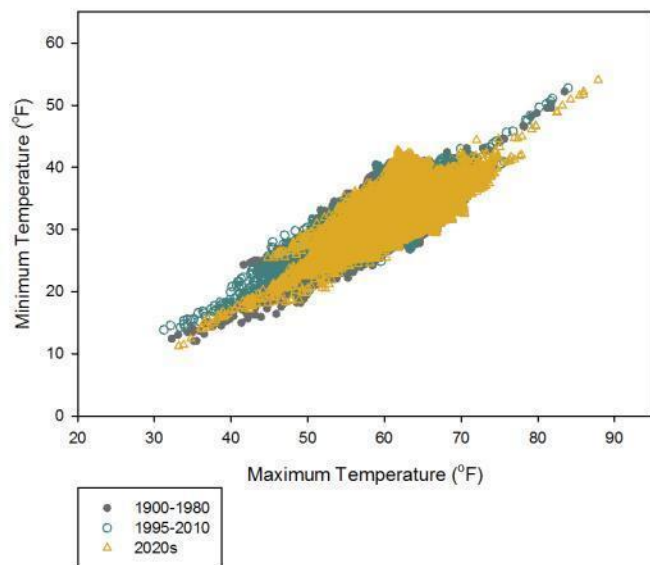
Mojave Basin

April Minimum Temperature Anomalies

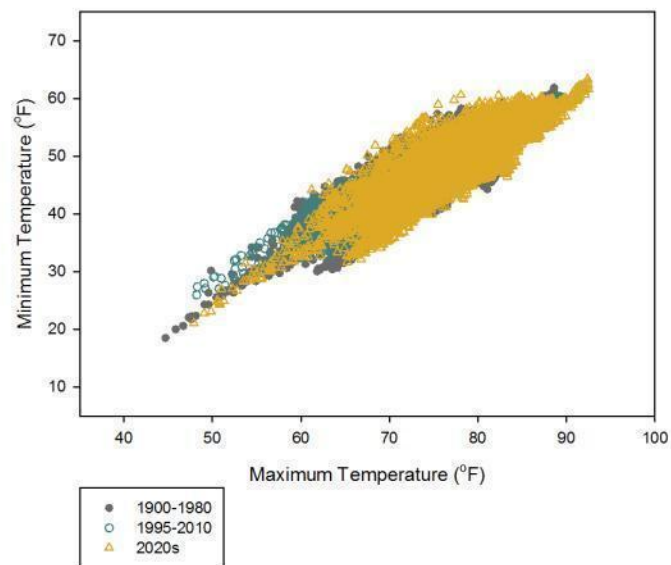
1900-1980 vs 1995-2010



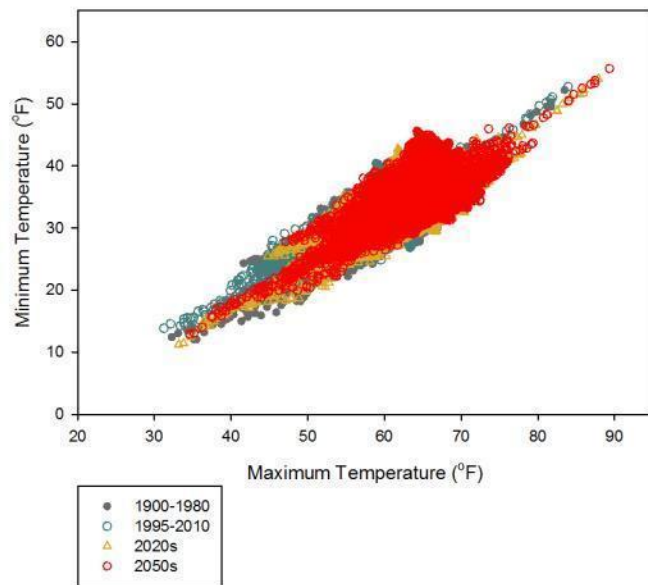
Central Basin and Range
Climate Space Trends
April



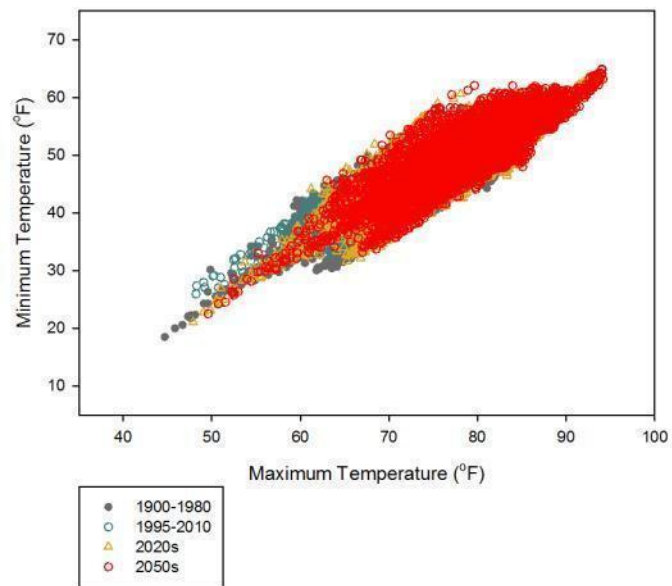
Mojave Basin and Range
Climate Space Trends
April



Central Basin and Range
Climate Space Trends
April

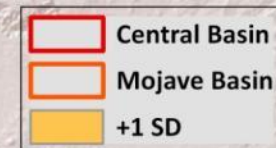


Mojave Basin and Range
Climate Space Trends
April





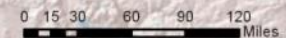
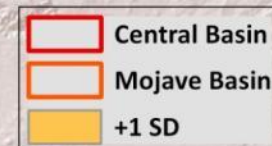
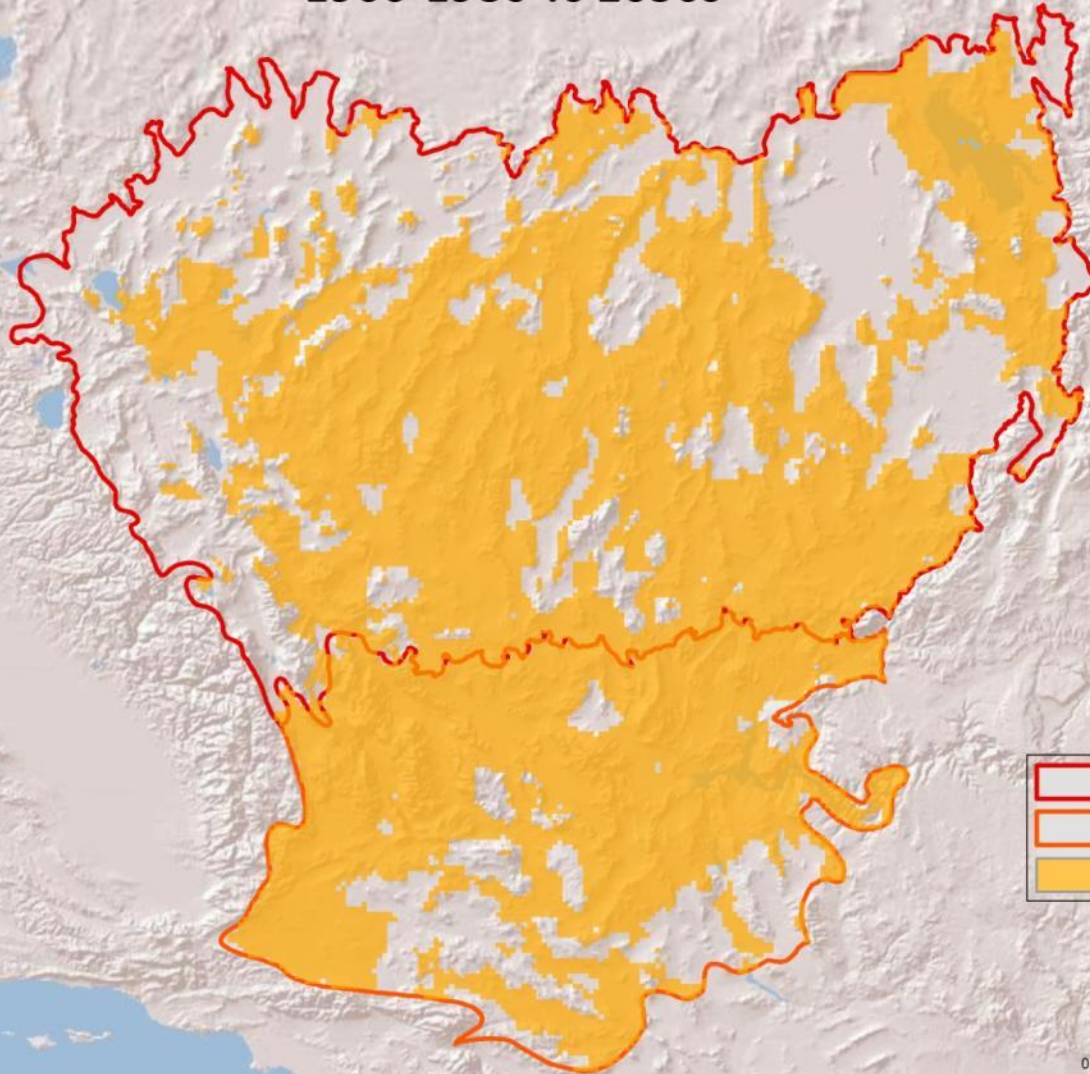
Central Basin and Mojave Basin April Maximum Temperature Anomalies 1900-1980 vs 2020s



0 15 30 60 90 120
Miles

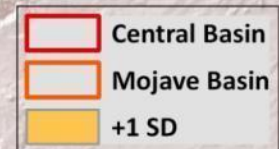


Central Basin and Mojave Basin April Maximum Temperature Anomalies 1900-1980 vs 2050s





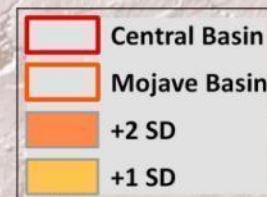
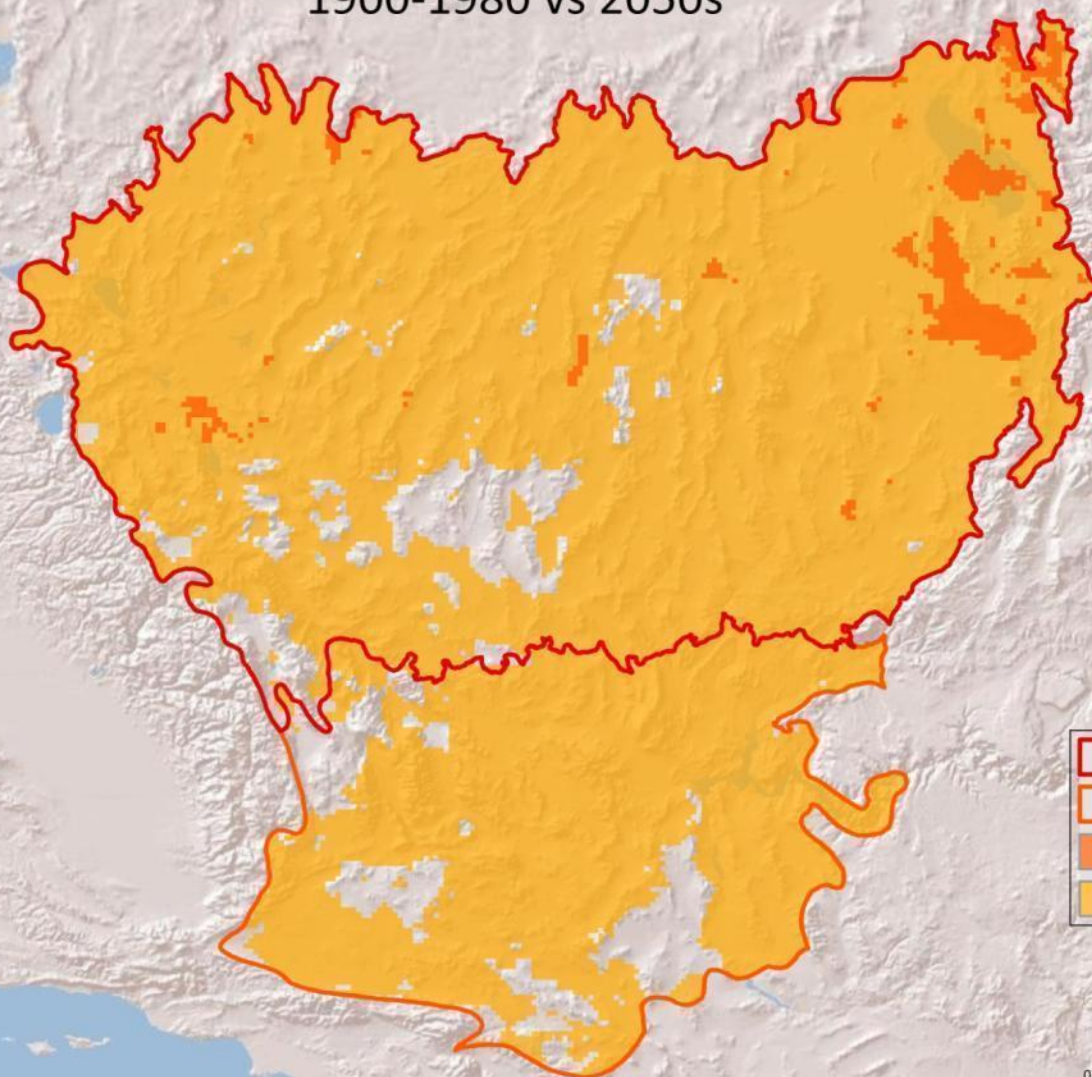
Central Basin and Mojave Basin April Minimum Temperature Anomalies 1900-1980 vs 2020s



0 15 30 60 90 120
Miles

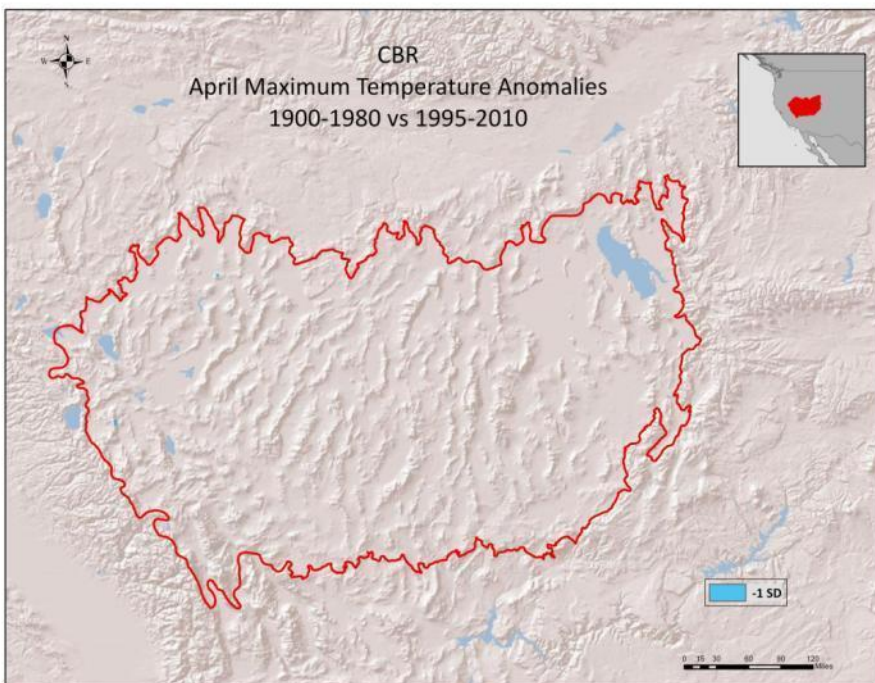


Central Basin and Mojave Basin April Minimum Temperature Anomalies 1900-1980 vs 2050s

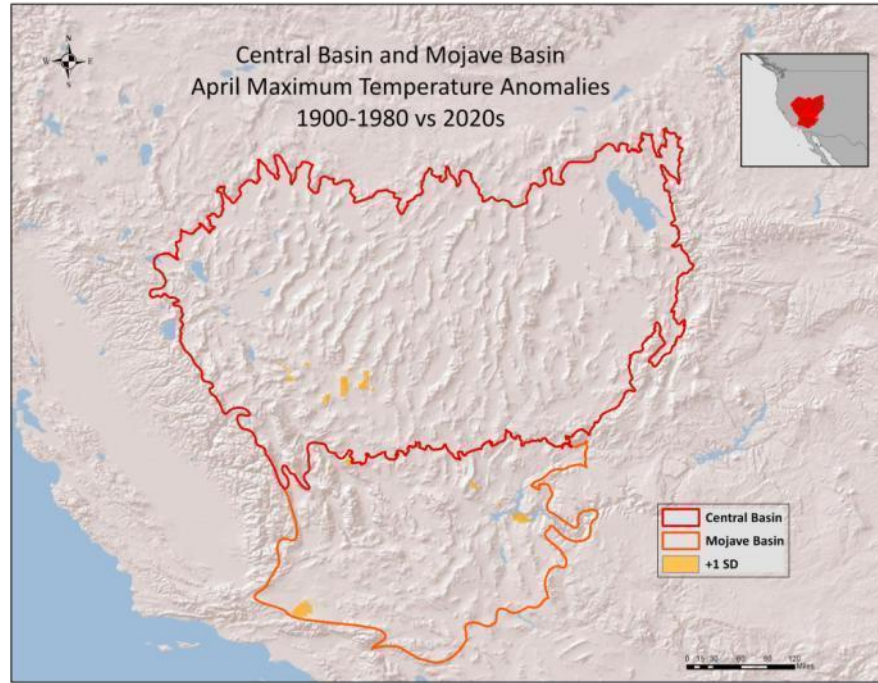


0 15 30 60 90 120
Miles

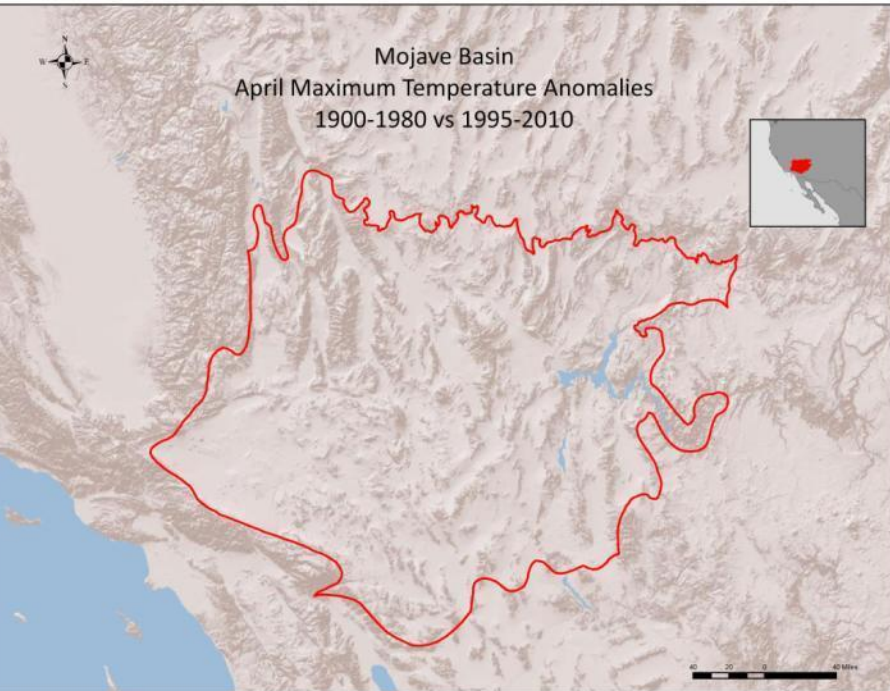
CBR
April Maximum Temperature Anomalies
1900-1980 vs 1995-2010



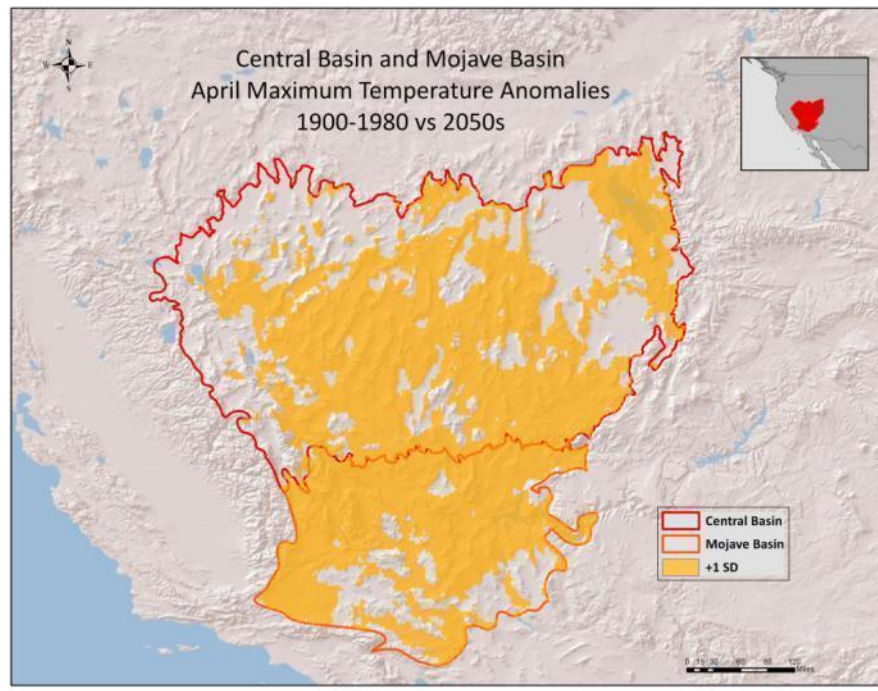
Central Basin and Mojave Basin
April Maximum Temperature Anomalies
1900-1980 vs 2020s

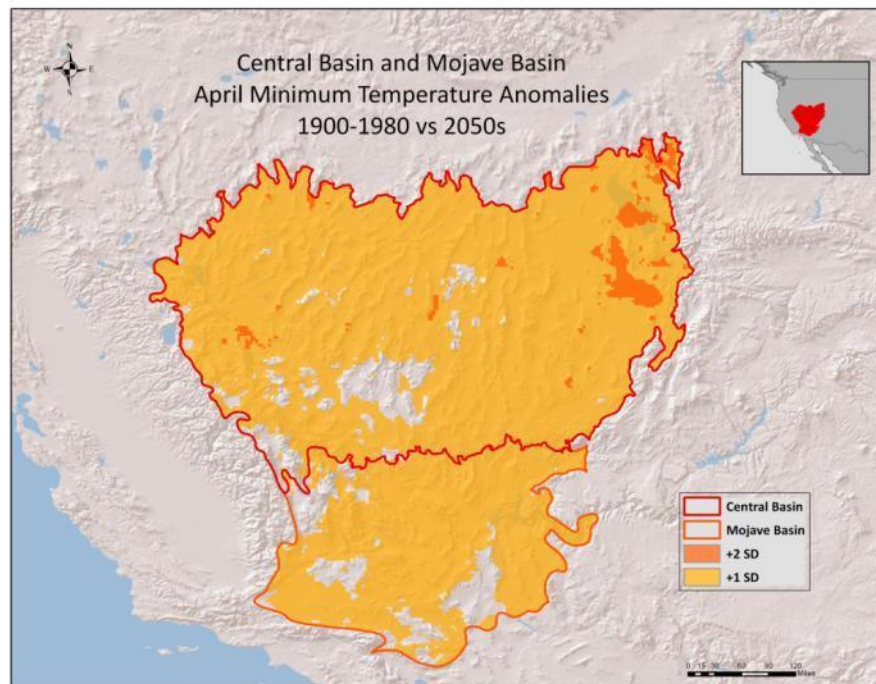
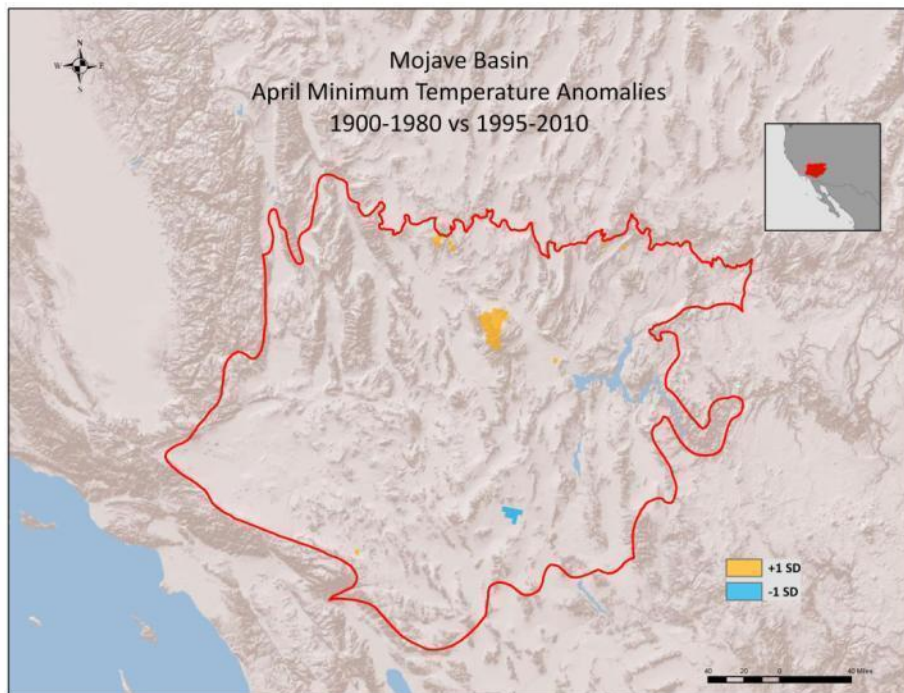
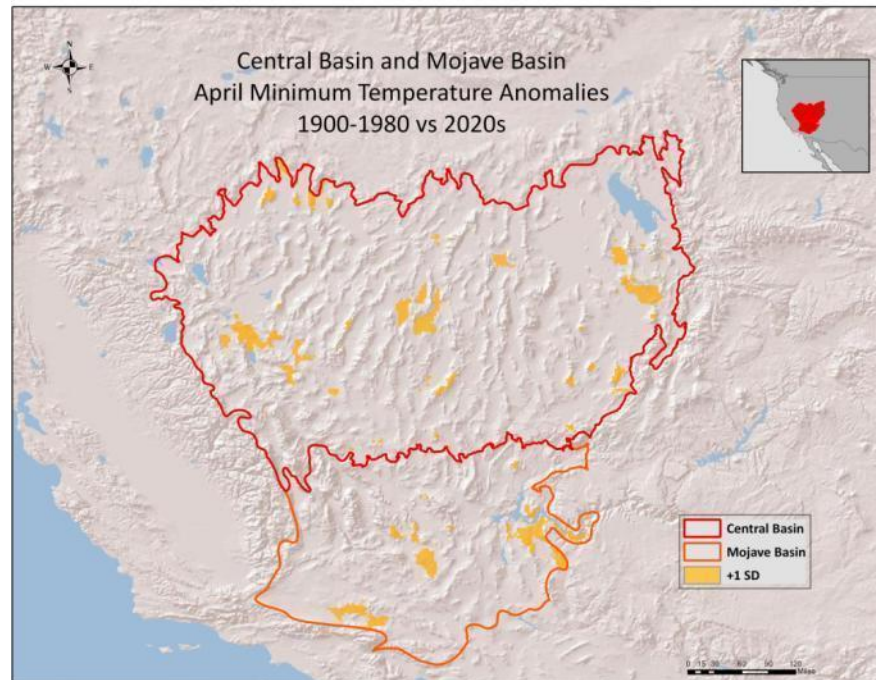
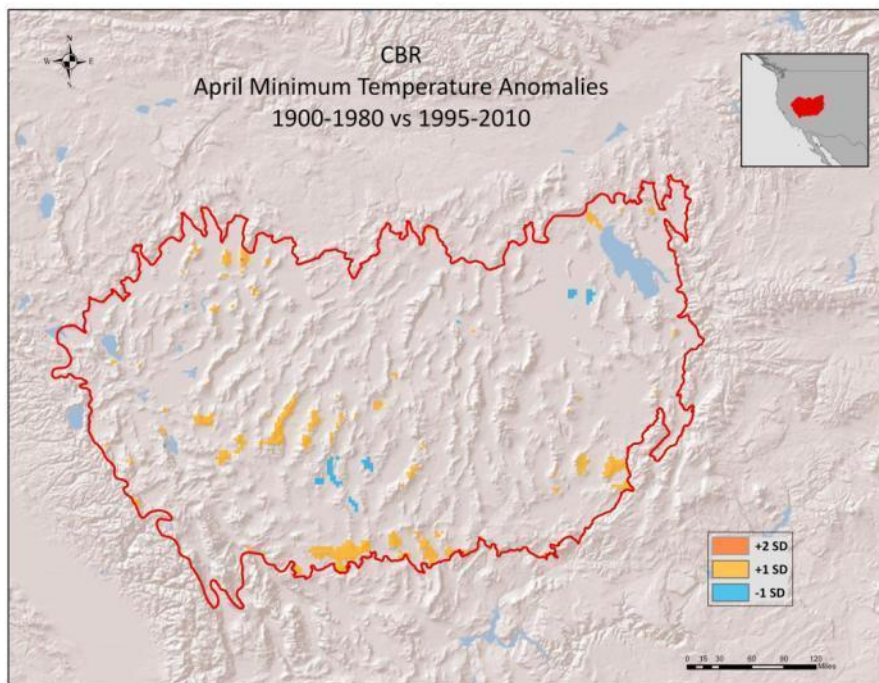


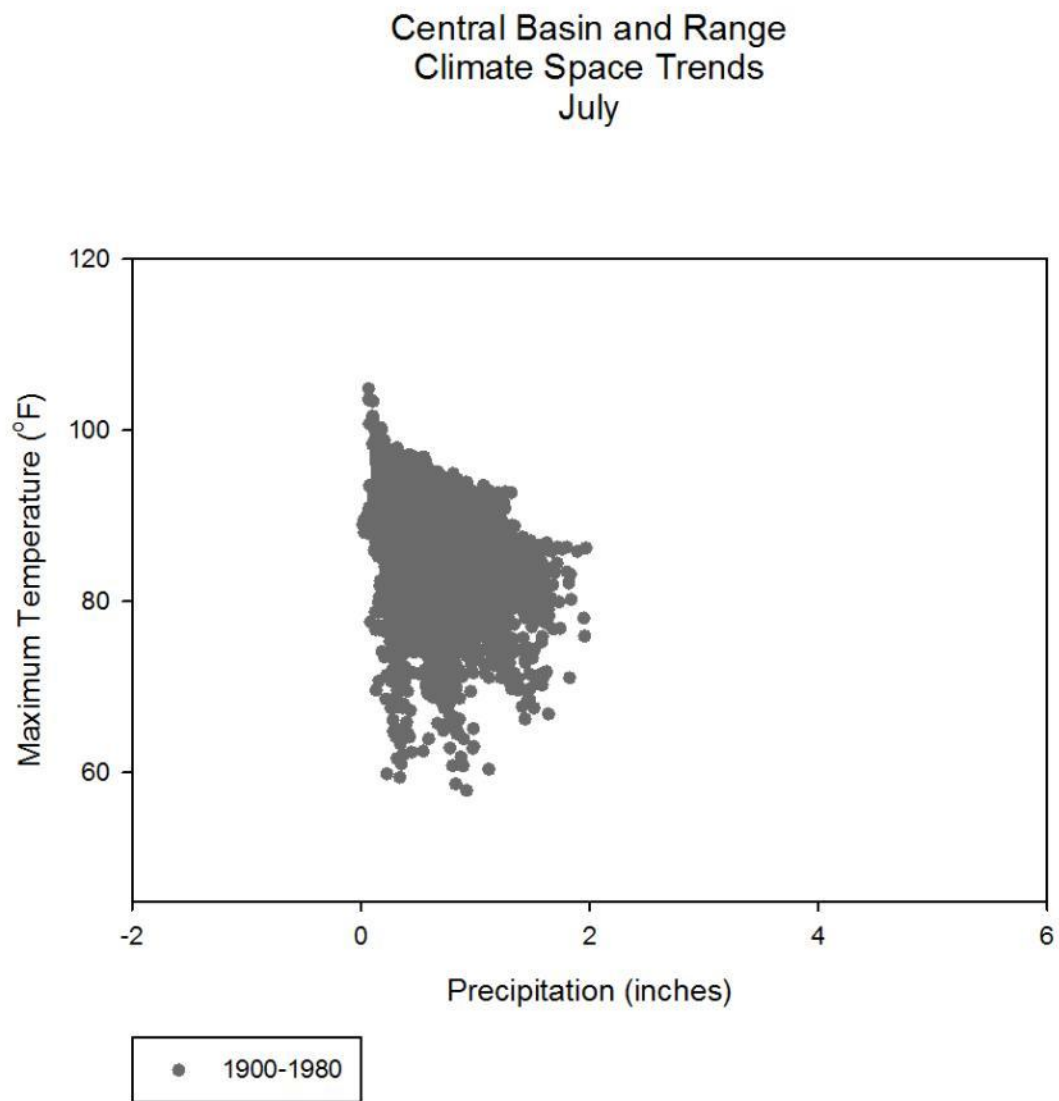
Mojave Basin
April Maximum Temperature Anomalies
1900-1980 vs 1995-2010

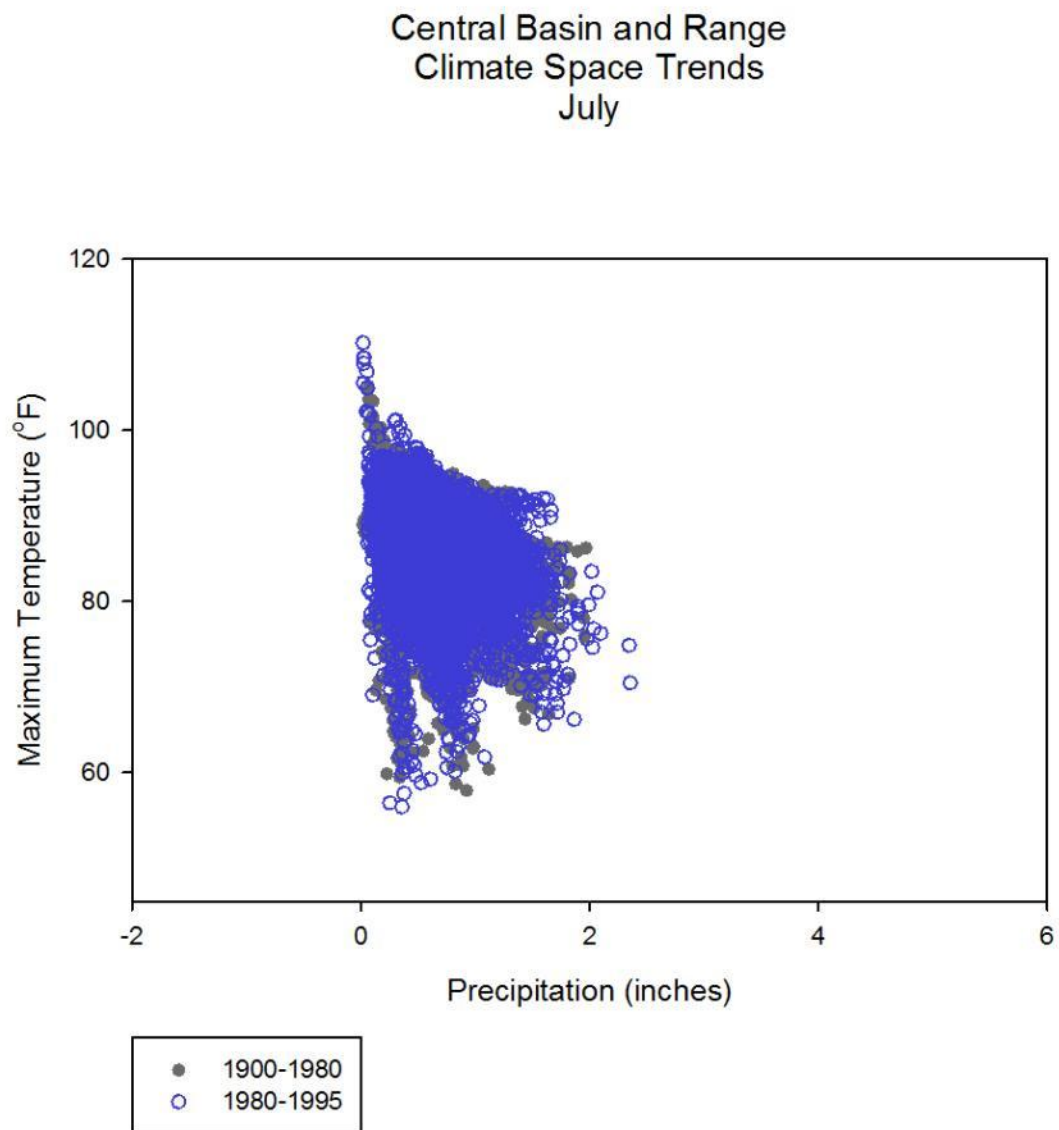


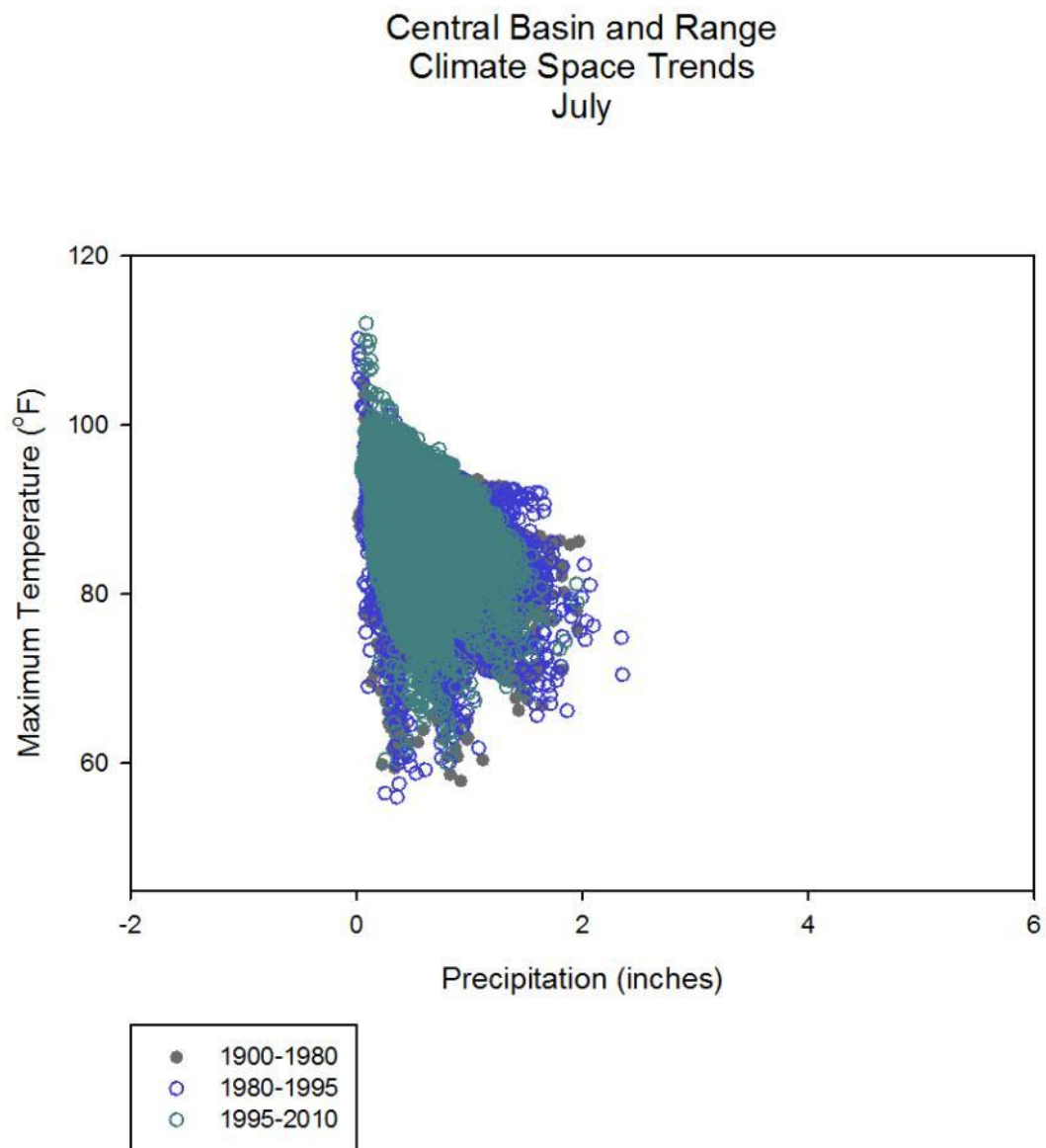
Central Basin and Mojave Basin
April Maximum Temperature Anomalies
1900-1980 vs 2050s

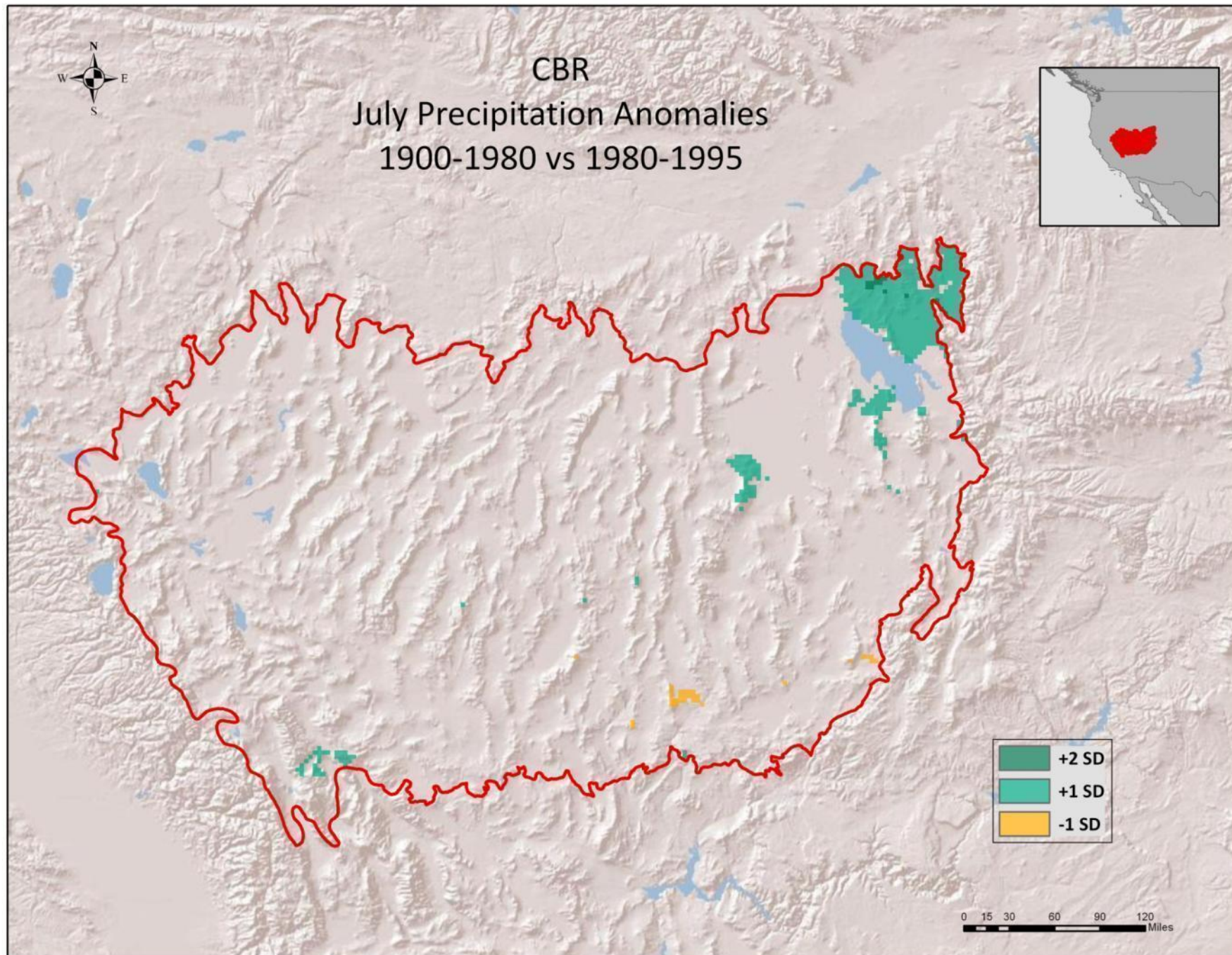






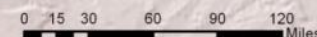




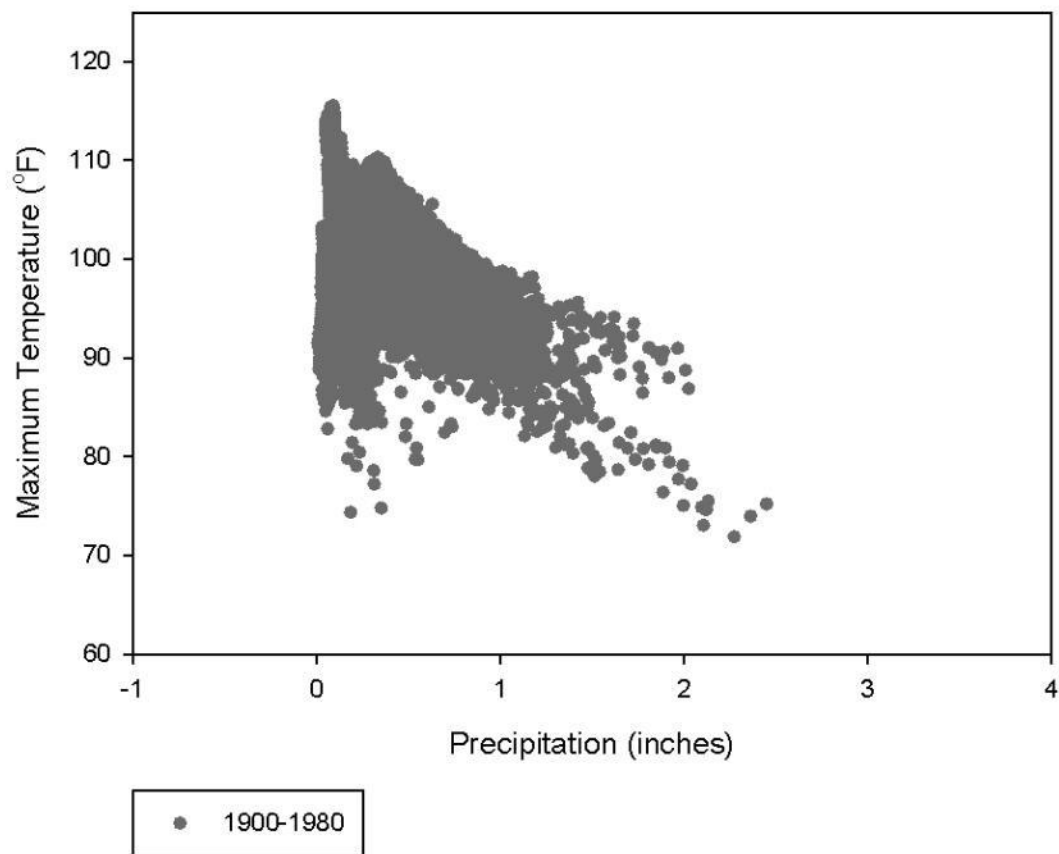


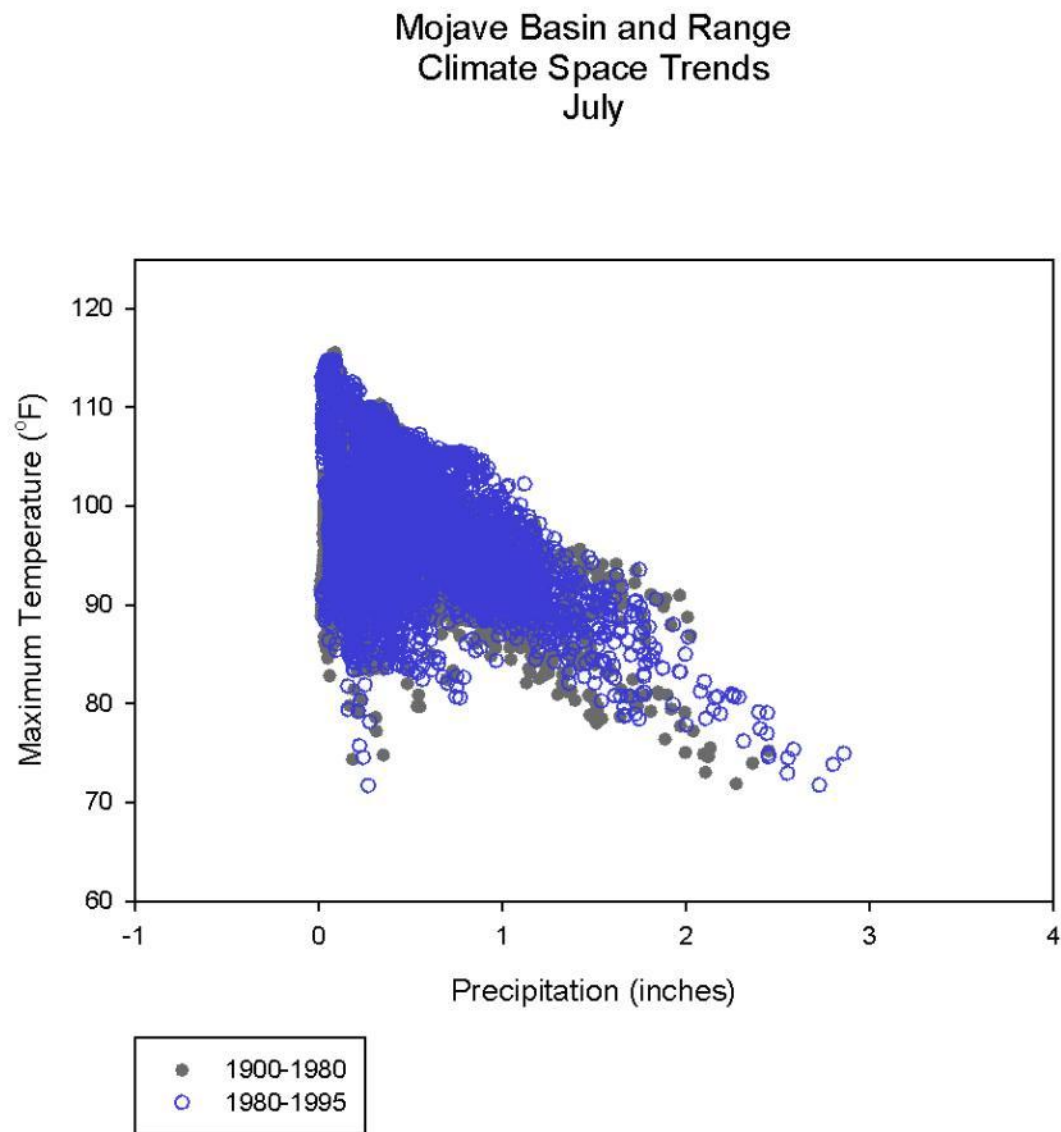


CBR
July Precipitation Anomalies
1900-1980 vs 1995-2010

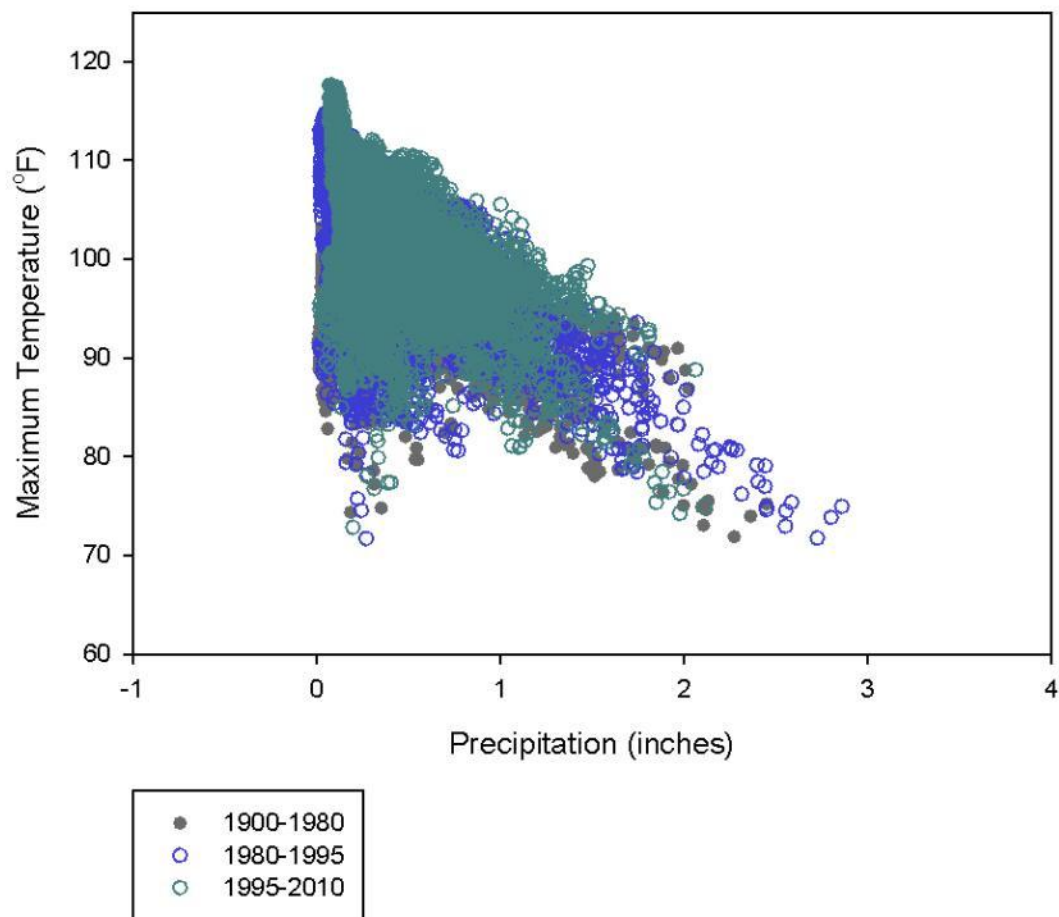


Mojave Basin and Range Climate Space Trends July





Mojave Basin and Range Climate Space Trends July

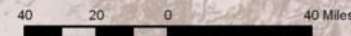




Mojave Basin

July Precipitation Anomalies

1900-1980 vs 1980-1995

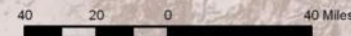
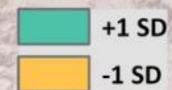




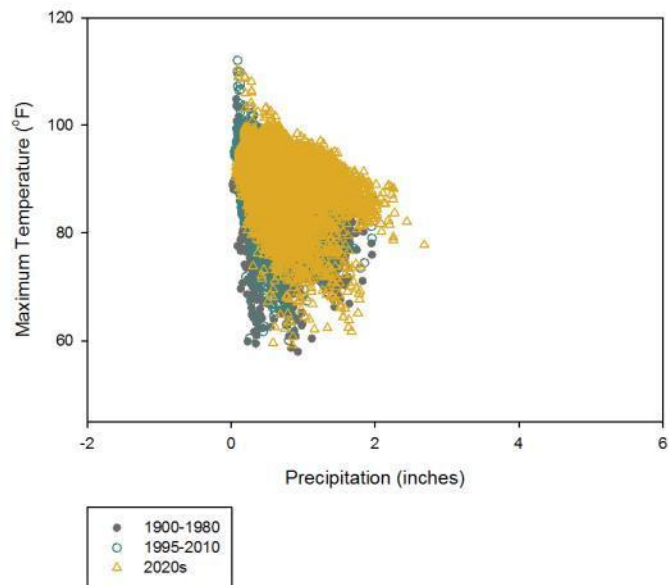
Mojave Basin

July Precipitation Anomalies

1900-1980 vs 1995-2010



Central Basin and Range
Climate Space Trends
July



Mojave Basin and Range
Climate Space Trends
July

