Multi-year Predictions of Snow Water Equivalent over North America in Global and Regional Climate Models

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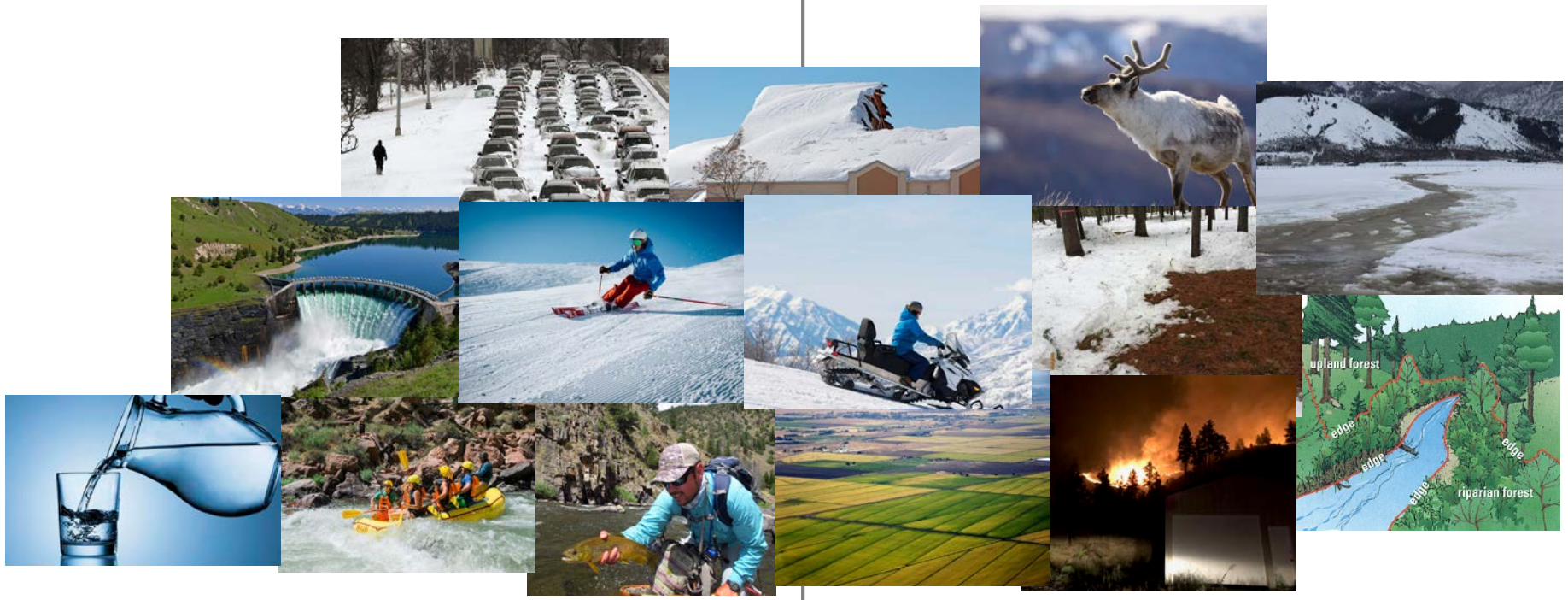
HYPERFACETS
A Framework for Improving Analysis and Modeling of Earth System and Intersectoral Dynamics at Regional Scales



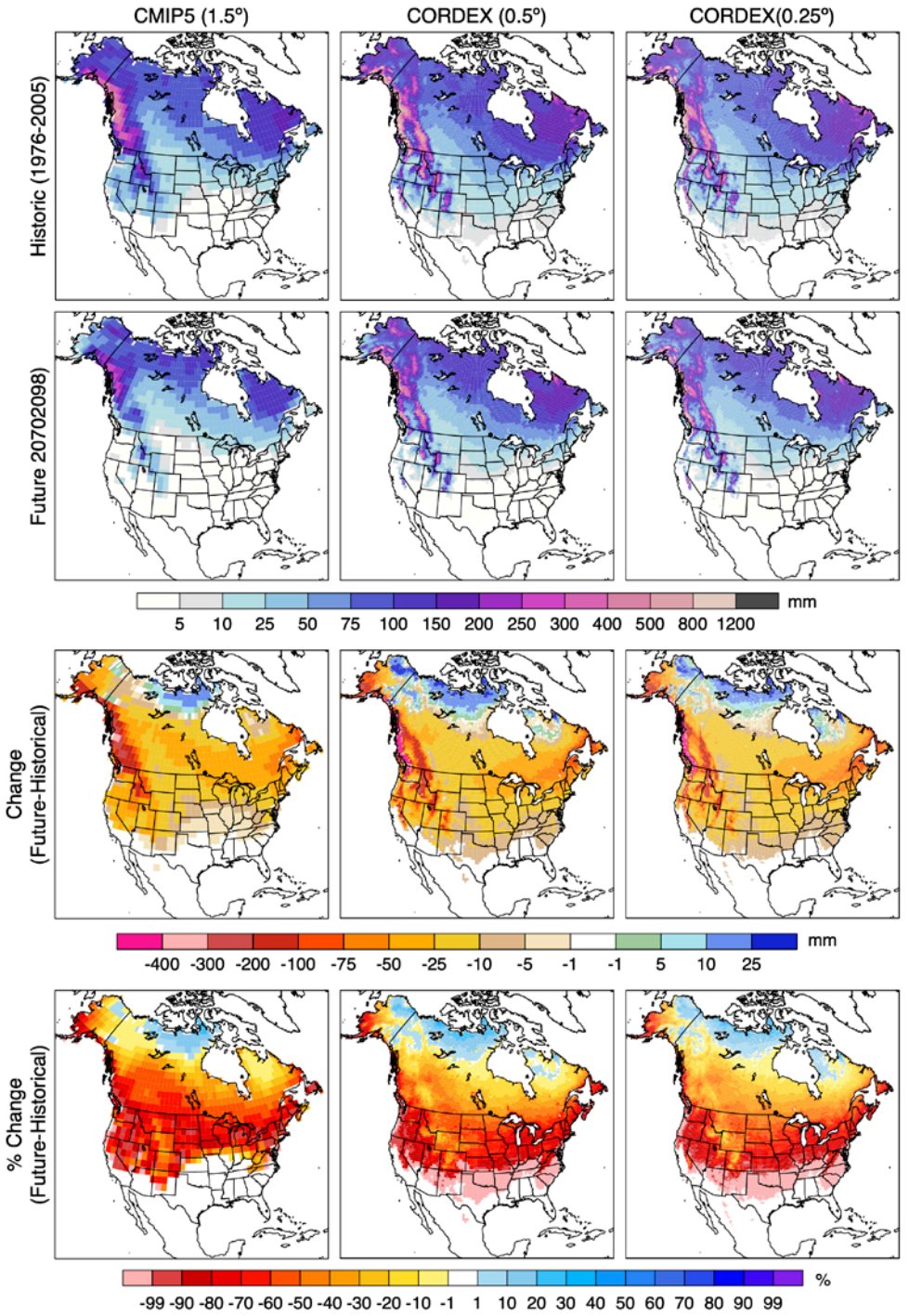
WCRP CORDEX **NA-CORDEX**

	CRCM5-U	CRCM5-O	WRF	CanRCM4	HIRHAM
HadGEM2-ES			50/25 (km)		
CanESM2	44º/22º	-/22º		44º/22º	
CNRM-CM5		-/22º			
MPI-ESM-LR	44º/22º	-/22º	50/25 (km)		
MPI-ESM-MR	44º/22º	-/22º			
EC-EARTH					44º/-
GFDL-ESM2M			50/25 (km)		

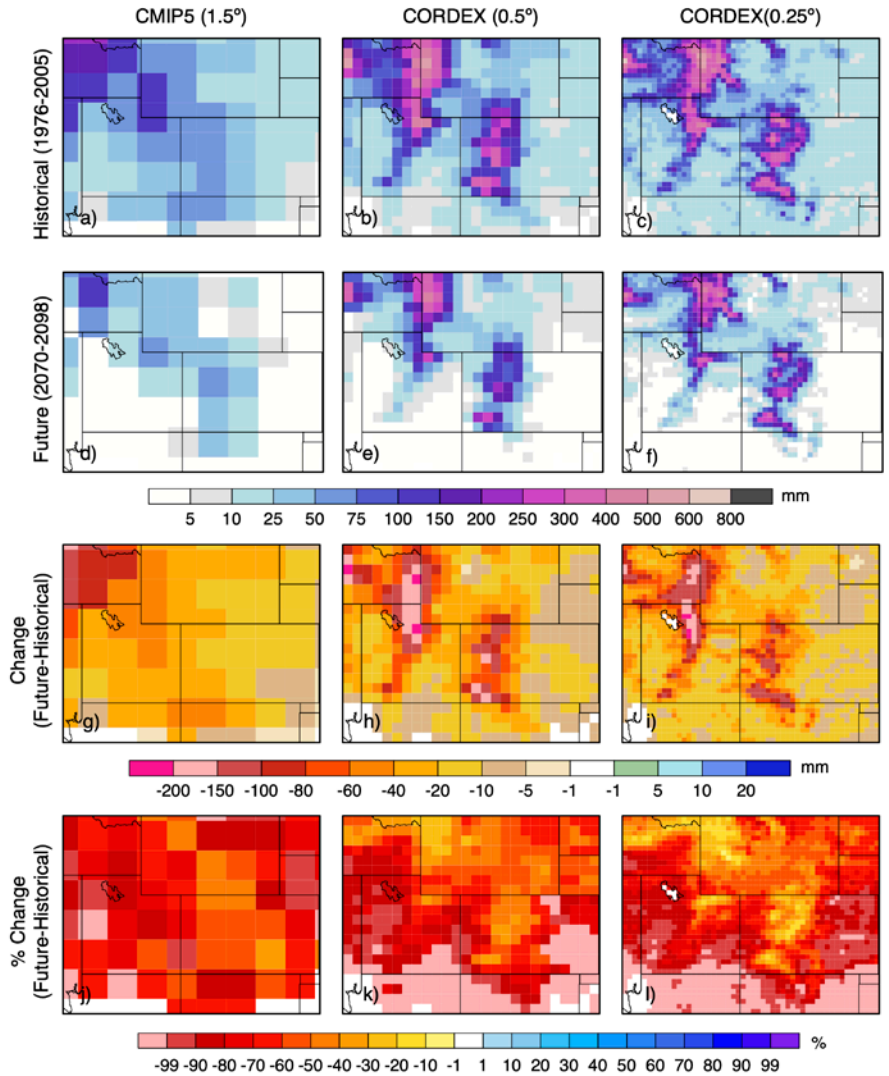
- All simulations of the future follow RCP8.5
- Historic Period: 1976-2005
- Future Period: 2070-2098

- Full CMIP5 : 16 models.
- Driving CMIP5: 6 models.
- ~0.5º CORDEX: 8 models.
- ~0.25º CORDEX: 11 models.

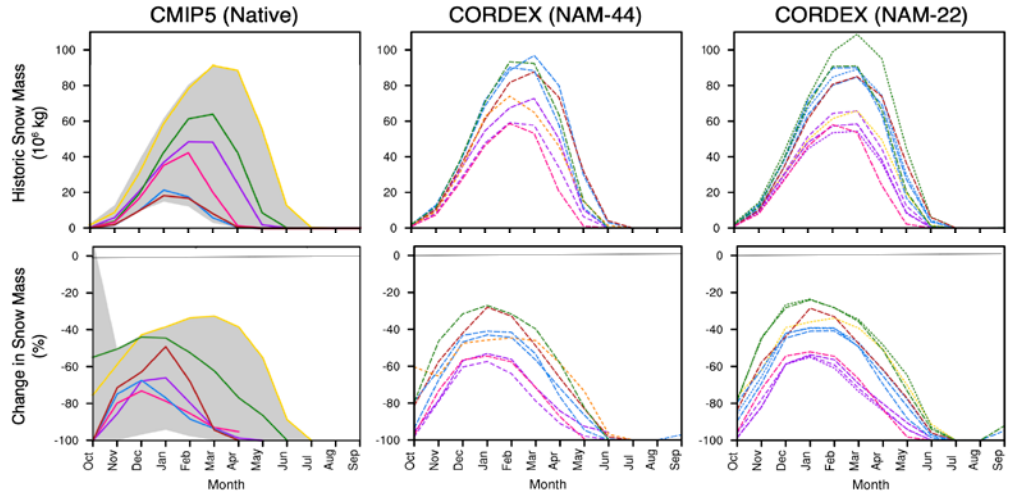
Note: RCMs are very wet and have large positive SWE biases



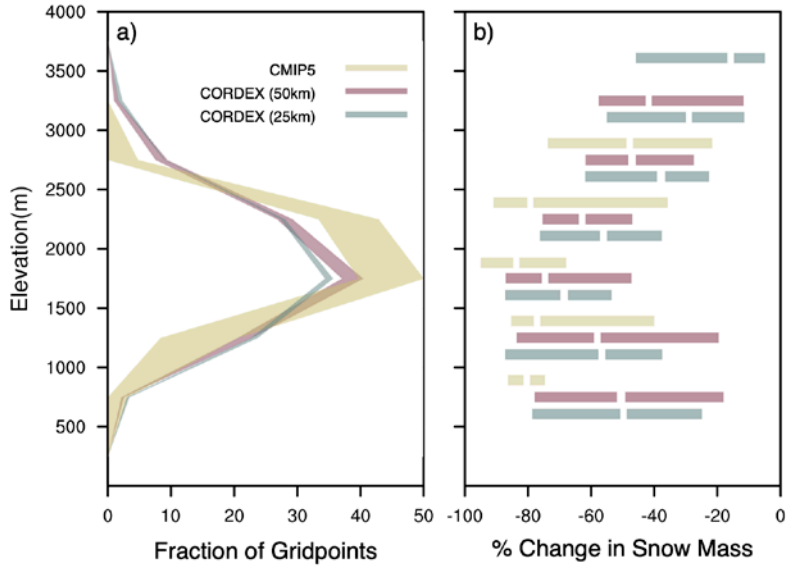
A Closer Look: US Intermountain West



Snow on mountains becomes more distinct with increasing resolution



- Higher elevation mountains -> reduced loses for the domain as many points remain below freezing.



- CMIP5 models oversample low and mid elevations.
- SWE losses are reduced with elevation.