



Reanalysis Future Uses

Improvements & Shortcomings

Wind & Site

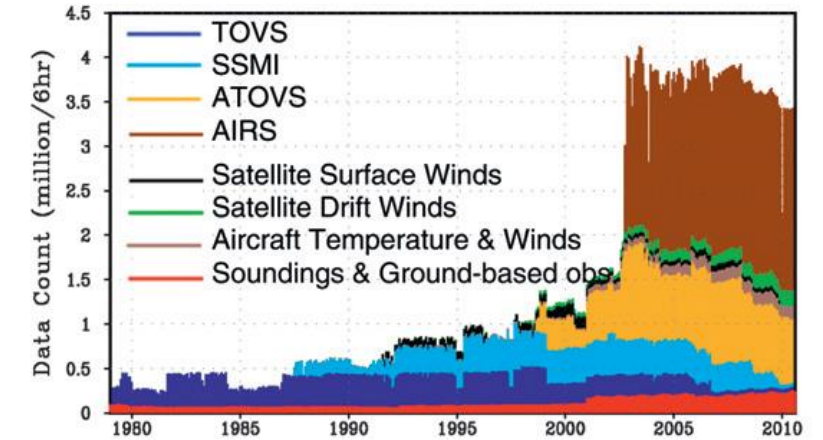
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Improvements & Shortcomings

- **Consistency, long-term – where, when? (->)**
 - Consistency is very important!
 - Regional info on jumps in data/consistency

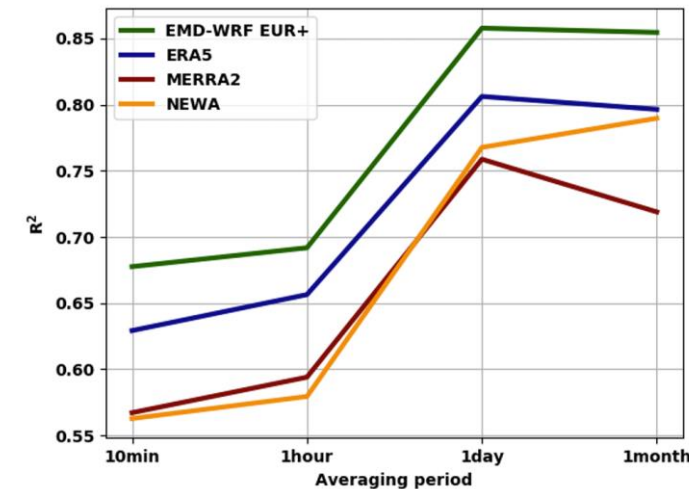




Improvements & Shortcomings

- **Consistency, long-term – where, when?**
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- **Reducing Biases – space & time (metrics, $p \propto u^3$ ->)**
 - Time: Seasonal, Diurnal (cf. RE value)
 - Space: Continental interiors, Coastal transition

Statistics 300 masts	MERRA2	NEWA	ERA5	EMD-WRF EUROPE+
Wind speed, 10min (R^2) mean(R^2) \pm std(R^2)	0.57 \pm 0.15	0.56 \pm 0.13	0.63 \pm 0.17	0.68 \pm 0.12
Wind direction (MAE) mean(MAE) \pm std(MAE)	47° \pm 17°	47° \pm 14°	42° \pm 18°	39° \pm 16°
Wind distribution (CV error) mean(CV error) \pm std(CV error)	-7% \pm 10%	6% \pm 11%	-3% \pm 10%	1% \pm 9%
Highlight legend: worst performance, second worst performance, best performance				





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- **Resolution - space & time (markets move to 5 min...)**
 - What makes sense given spatial resolution
 - Vertical heights (output levels): 0 to 500m agl.
- **Parameters (missing, improvements)**
 - Outputs: TKE, Wave & Current (Met-ocean coupling – Marine ABL)
 - Improvements: ABL (microscale, WTG interaction)
- **Weather Vs RE interaction**
 - Inputs to improved prognosis (DMI project)
 - Dense RE build-out (e.g. North Sea) – can affect weather (already there?)
- **Operational setup (ERAX Vs ERAX-T)**
 - Efficient error communication and correction process
- **Ensembles – input to uncertainty/scenarios**



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