

Observed Wind Impact on AADF Calculation

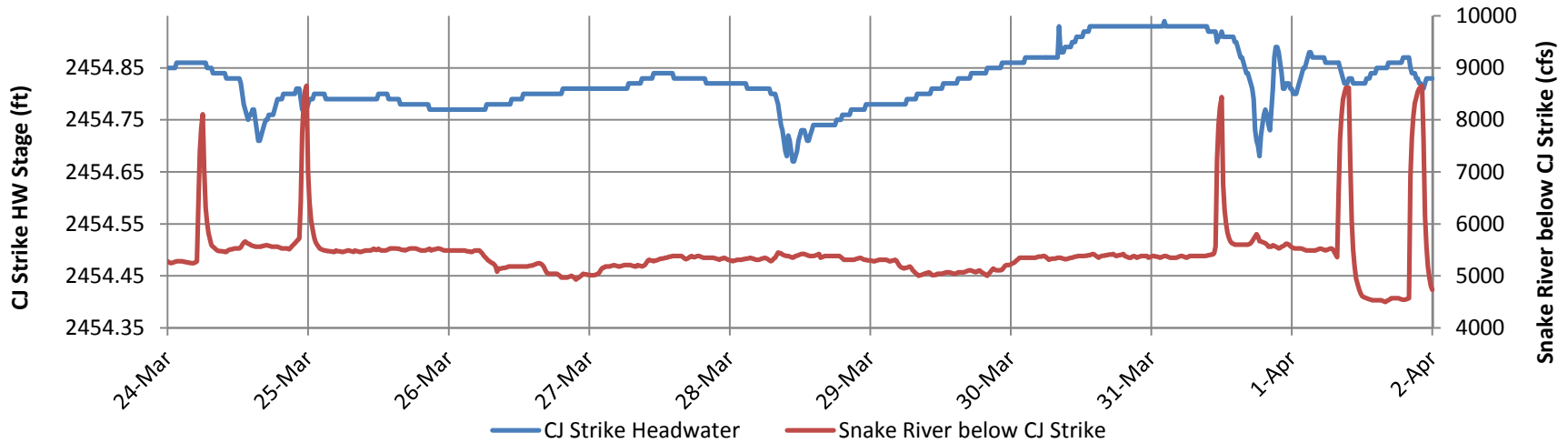
Presented by: Dan Stanaway

Date: 05/28/2015

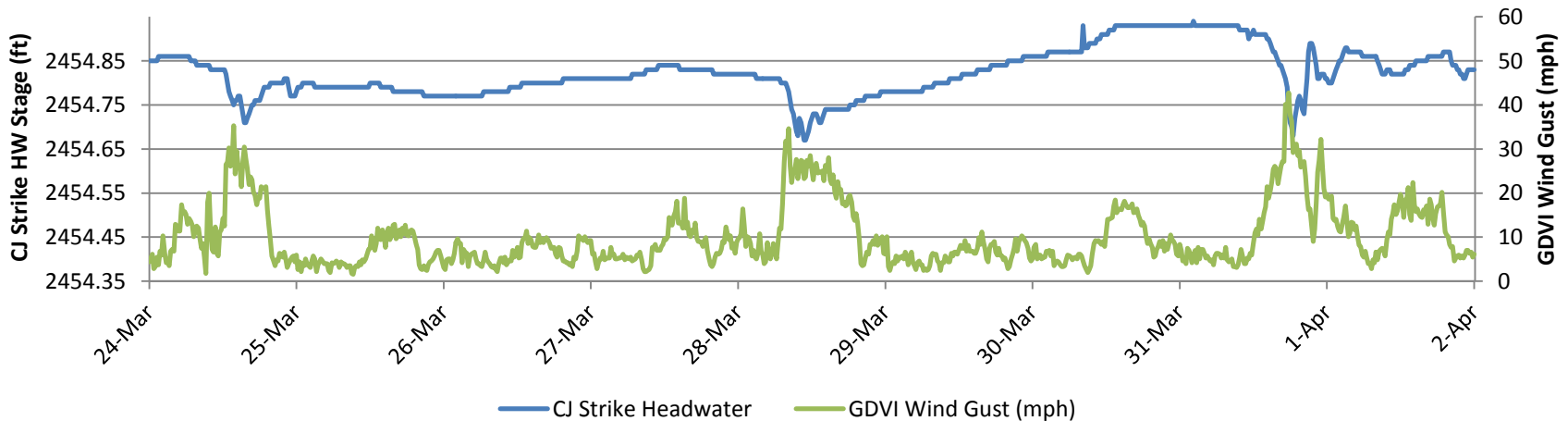


Potential Wind Effect on CJ Strike HW

CJ Strike Headwater and Outflow

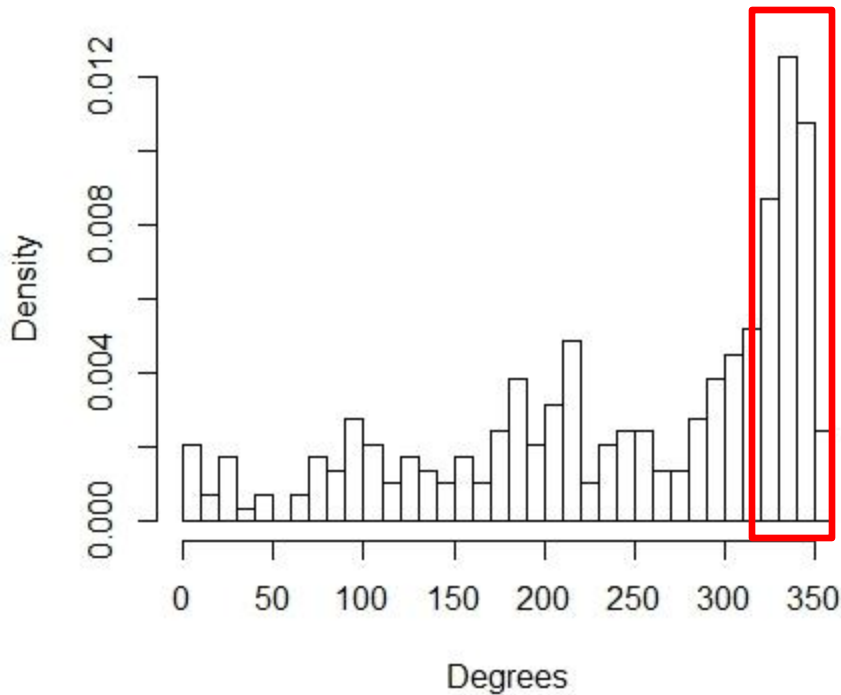


CJ Strike Headwater and Wind at GDVI

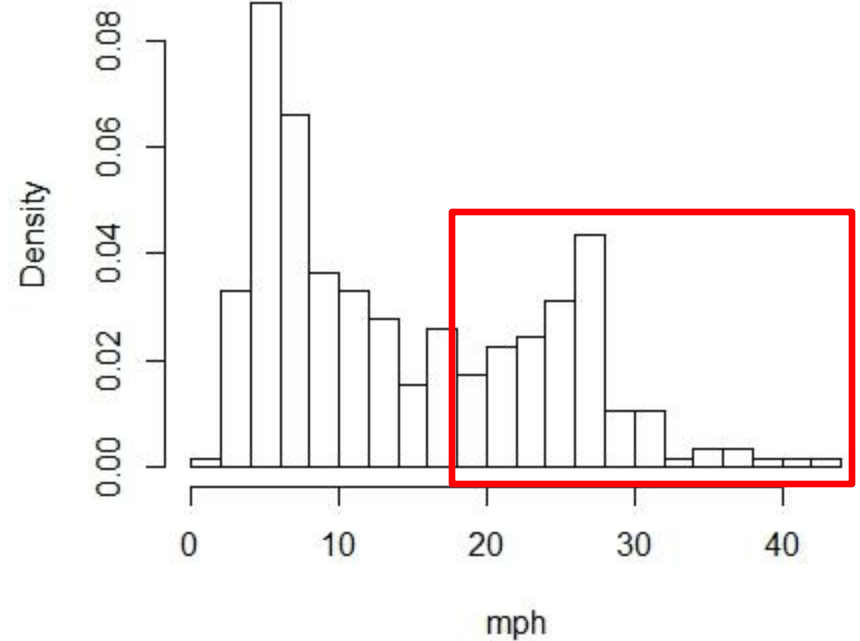


Wind Properties that Influence CJ Strike Stage Reading

Wind Direction at GDVI for March 24, 28, and 31

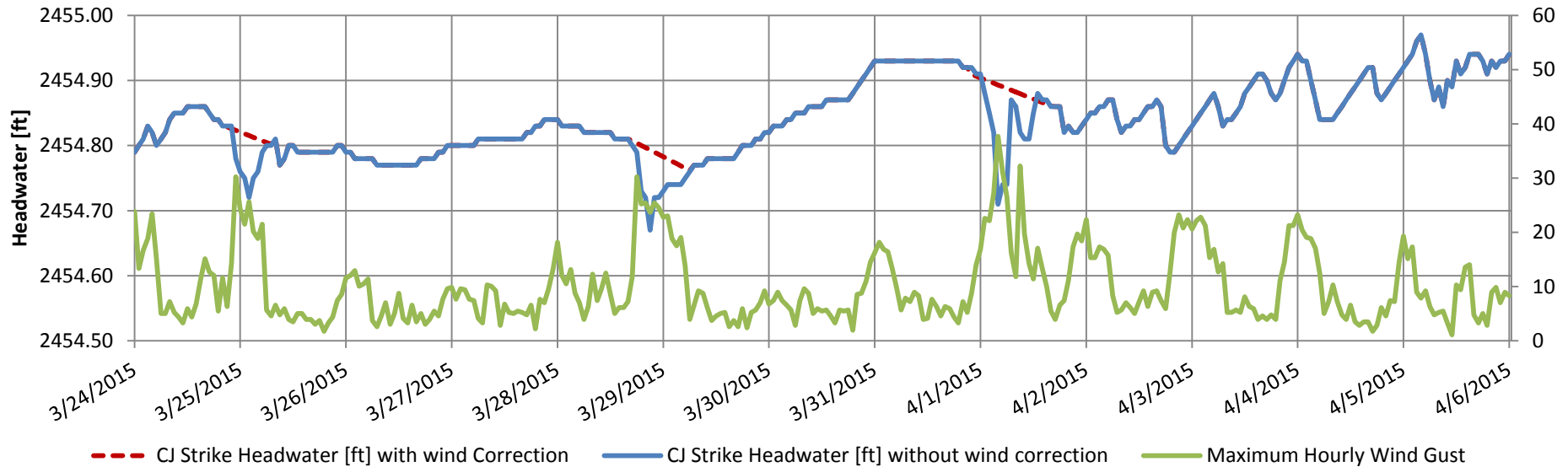


Wind Gust at GDVI for March 24, 28, and 31



Wind Correction Impact to AADF Calculation

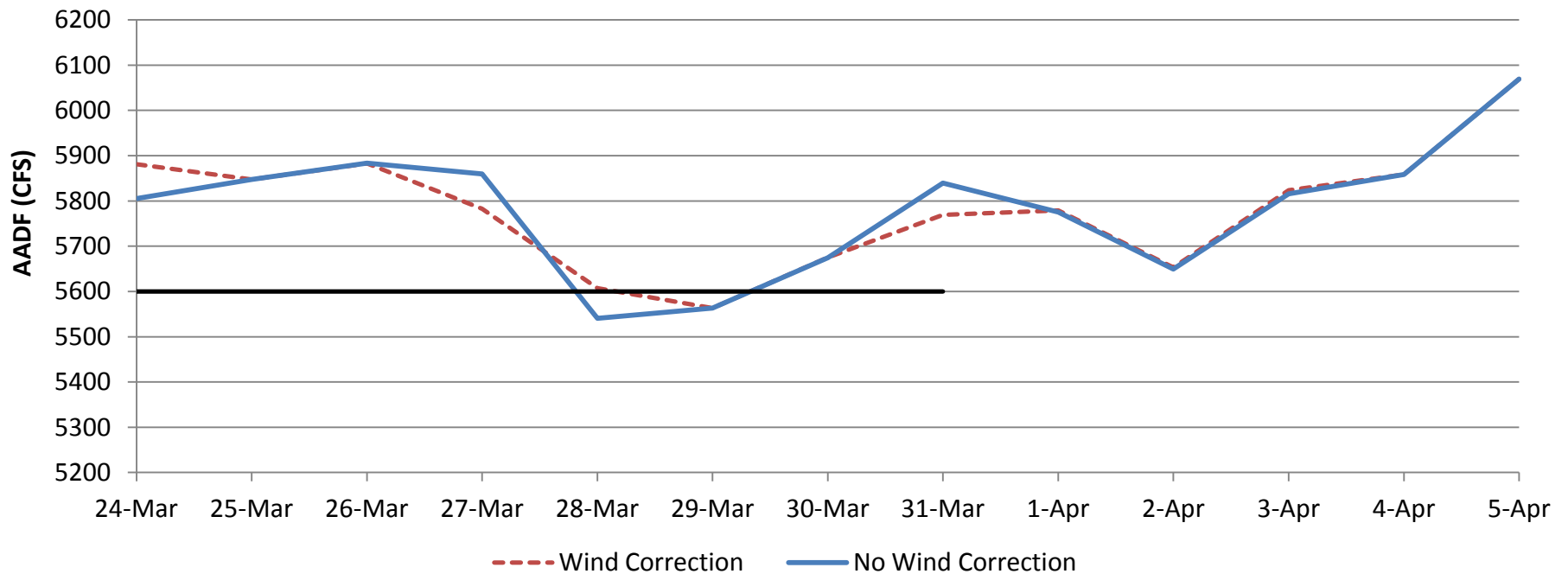
Wind Correction for CJ Strike Headwater (in Murphy Time)



AADF Wind Correction Impact Table

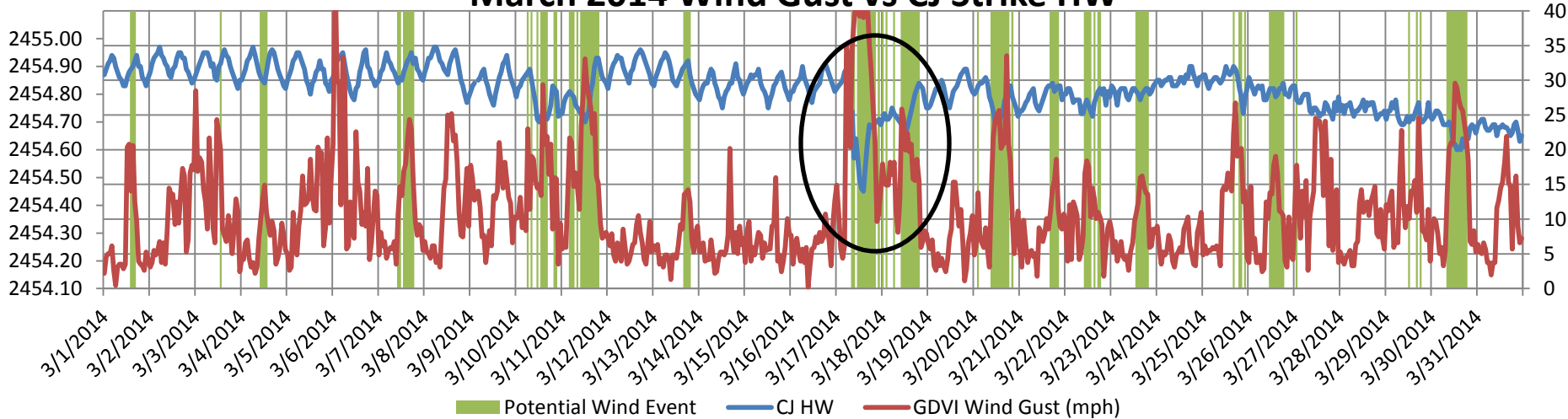
Date	Reservoir Adjustment			Impact to AADF Calculation			Units
	No Wind Correction	Wind Correction	Difference	No Wind Correction	Wind Correction	Difference	
23-Mar	-391	-391	0	5896	5896	0	cfs
24-Mar	-133	96	229	5805	5881	76	cfs
25-Mar	217	-13	-230	5848	5847	0	cfs
26-Mar	116	117	0	5883	5883	0	cfs
27-Mar	55	55	0	5860	5783	-77	cfs
28-Mar	-370	-170	200	5541	5607	66	cfs
29-Mar	244	45	-199	5563	5563	0	cfs
30-Mar	450	450	0	5675	5675	0	cfs
31-Mar	-76	-88	-12	5839	5769	-70	cfs
1-Apr	-378	-355	23	5775	5779	4	cfs
2-Apr	-167	-167	0	5650	5653	4	cfs
3-Apr	613	613	0	5816	5824	8	cfs
4-Apr	-50	-50	0	5859	5859	0	cfs
5-Apr	-65	-65	0	6069	6069	0	cfs
Minimum Flow Shortfall				190	73	118	ac-ft

AADF Wind Correction Impact

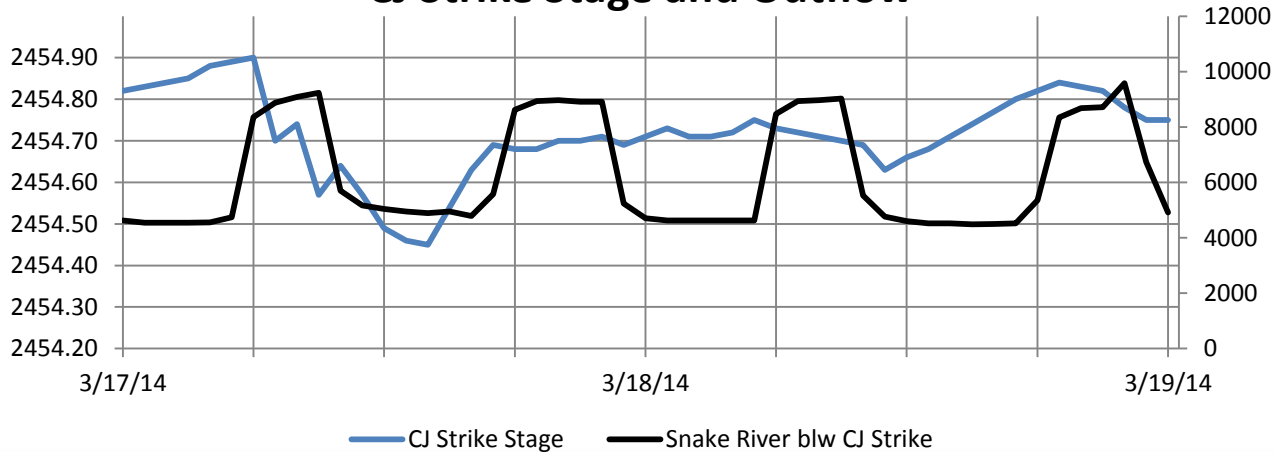


Wind Correction Method Applied

March 2014 Wind Gust vs CJ Strike HW



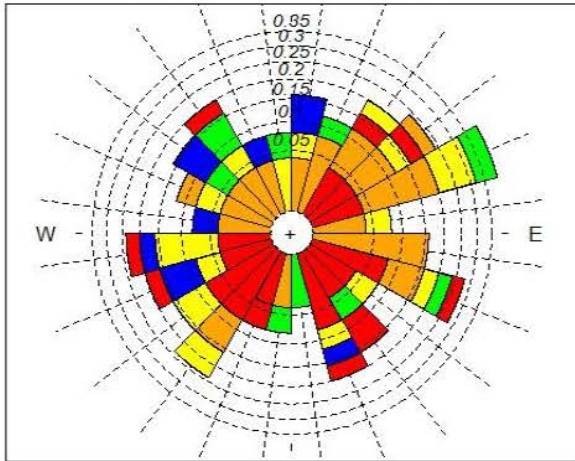
CJ Strike Stage and Outflow



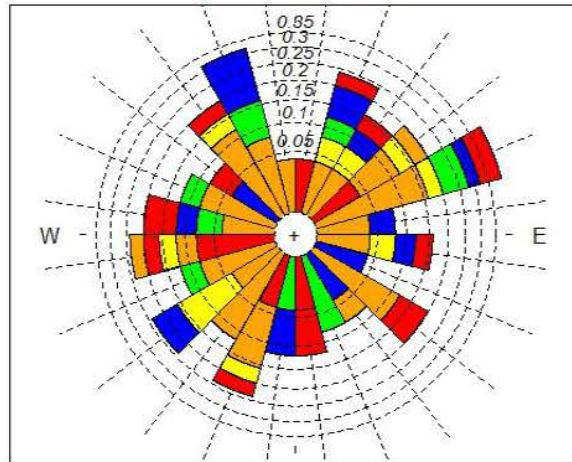
Wind Analysis Conclusions

- 118 ac-ft greater shortfall in March 2015 with approved AADF methodology
 - 62% of total shortfall based on approved AADF methodology
- Greatest AADF implication occurs when wind event straddles midnight
- Wind influences CJ Strike and Swan Falls with the combination of:
 - Sustained gusts over 20 mph
 - Wind direction of 300° - 360°
- Quantification and treatment of wind influences only significant when AADF is near minimum flows
- More difficult treat to wind induced headwater fluctuations during active reservoir operations
 - Stage reconstruction methodology is being developed

March 24 GDVI Wind Rose



March 28 GDVI Wind Rose



March 31 GDVI Wind Rose

