

Comparing the NWS Results for the Lavdas Atmospheric Dispersion Index (ADI) and NC Ventilation Index

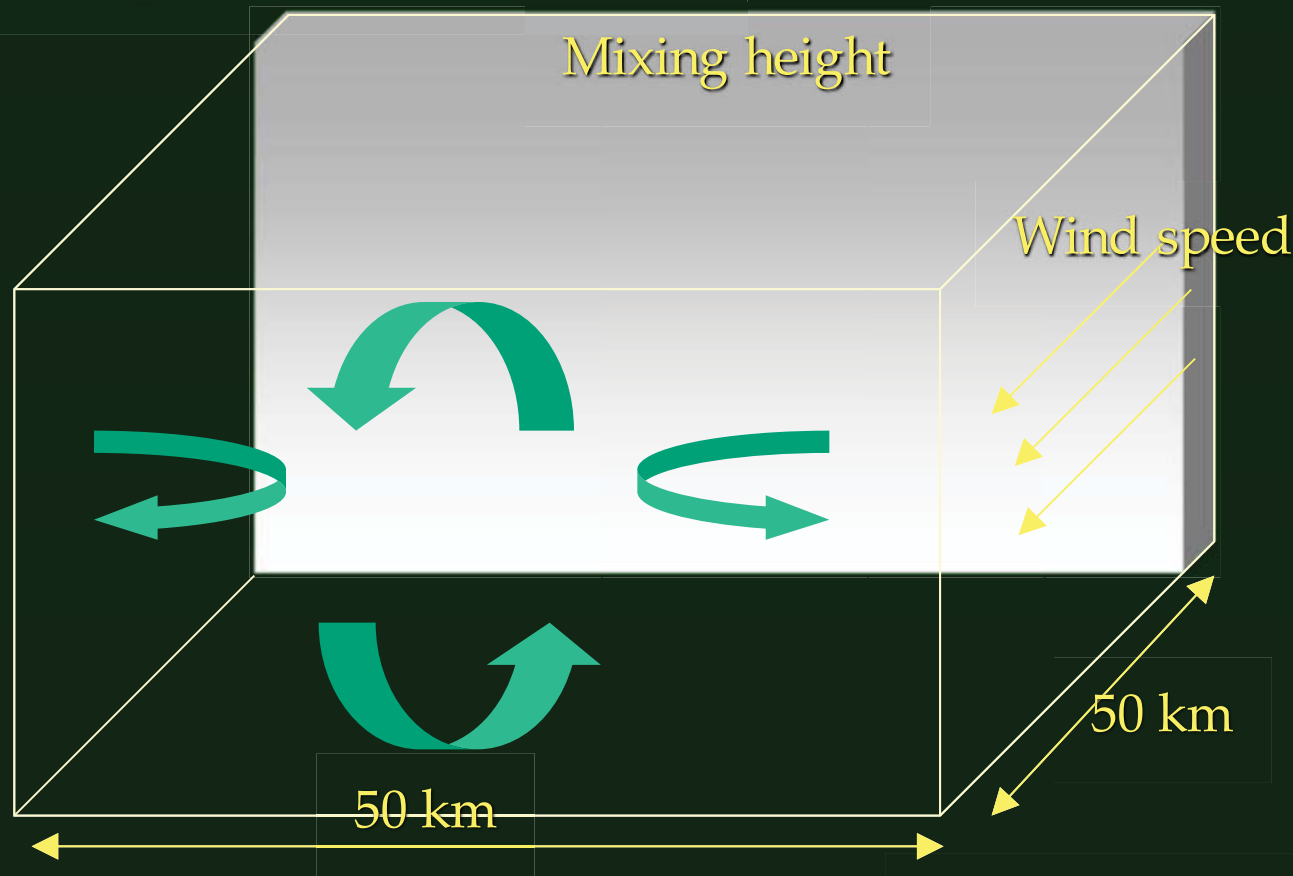
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North Carolina Prescribed Fire Council
Ad Hoc Technical Committee



Lavdas Dispersion Index

Ventilation Index is a product of the mixing height and transport wind speed.



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Approach

- Corey Davis (NC State Univ. Climate Office) wrote a script to extract NWS fire weather forecast (archived) data.
- Files produced for each of the seven forecast areas. Years: 2009-2014.
- For each day, there was files for the morning, afternoon, and any updated forecasts. Total GSP = 7266 files.
- If available, up to 63 forecasted variables.

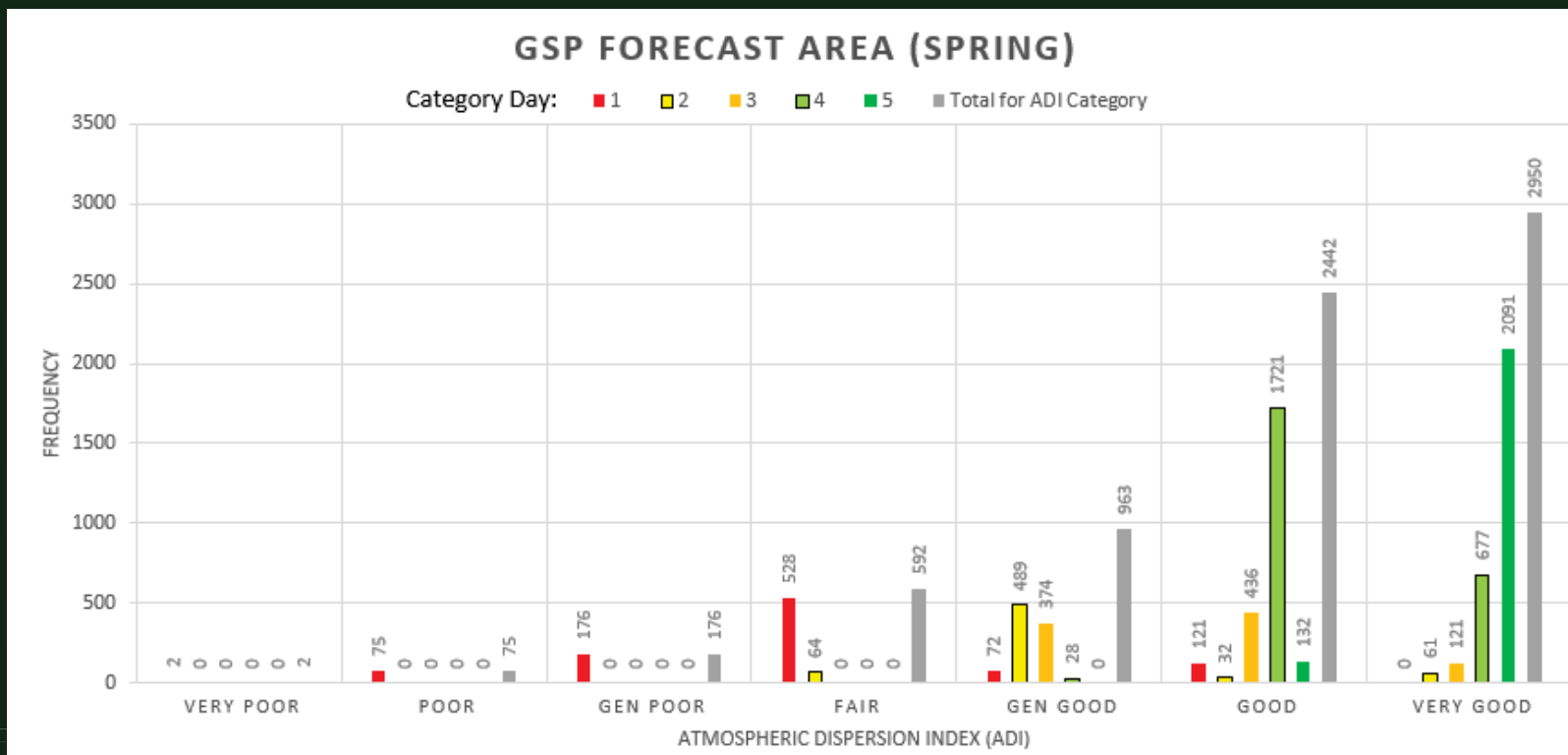


Approach

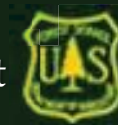
- Bill Jackson (USFS) wrote a program to process each of NWS fire weather forecast (archived) data.
- One Excel file produced for each of the seven forecast areas containing “Today’s” results.
- The file contains the date, season, transport wind speed, mixing height, ventilation index, ADI value, and ADI category.

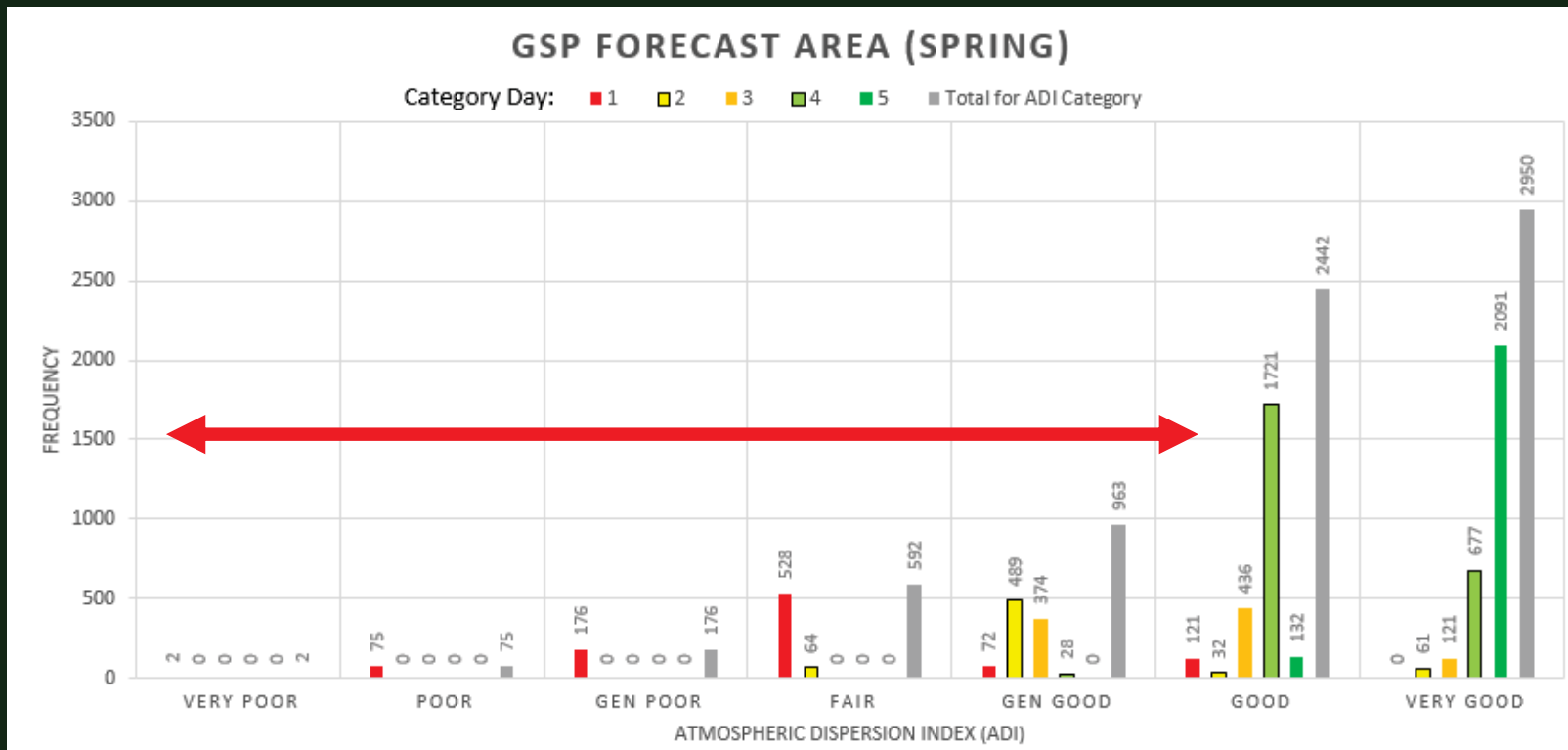


Results

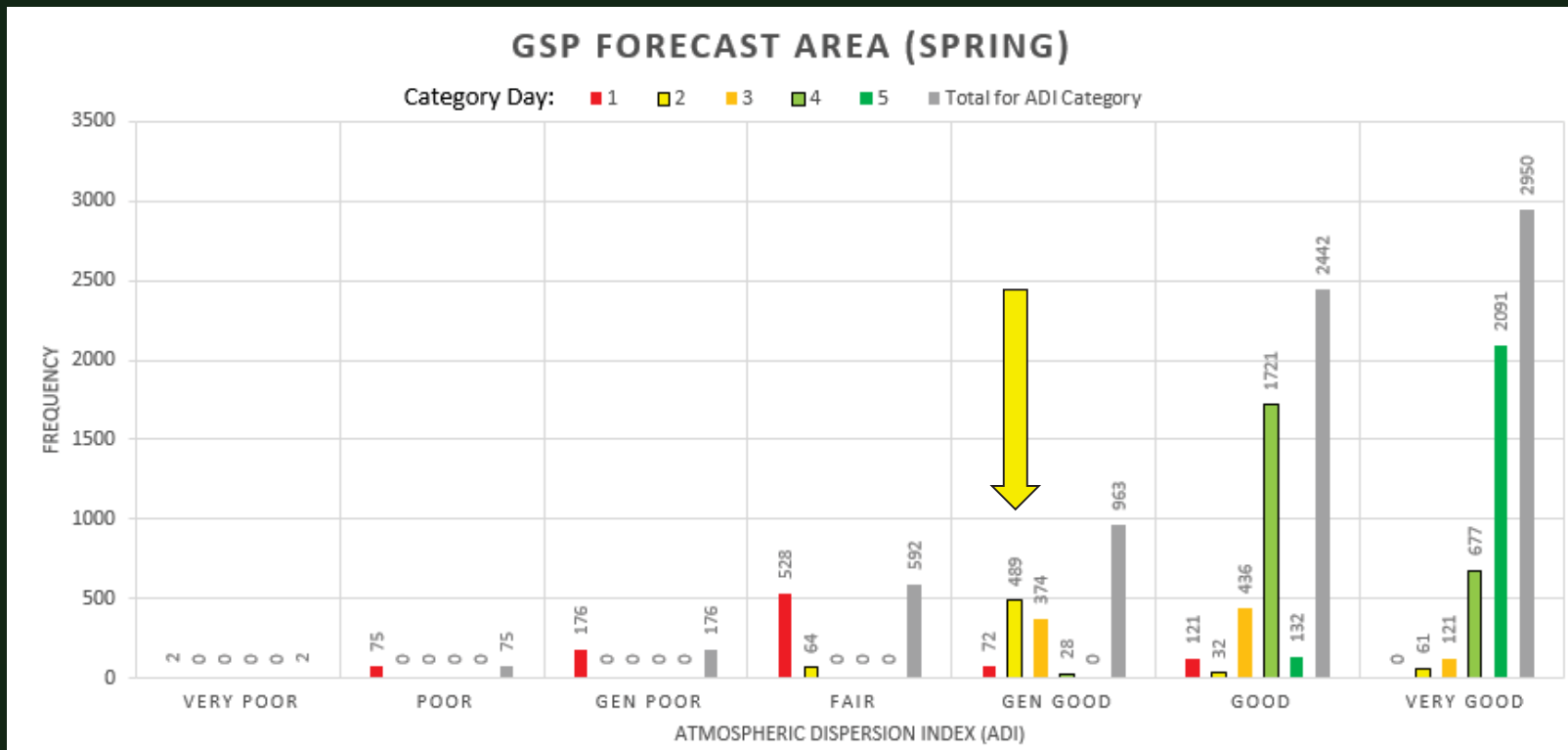


- For each NWS forecast area is a histogram of the annual, spring, summer, fall and winter results. Frequency for the entire 5-year period.



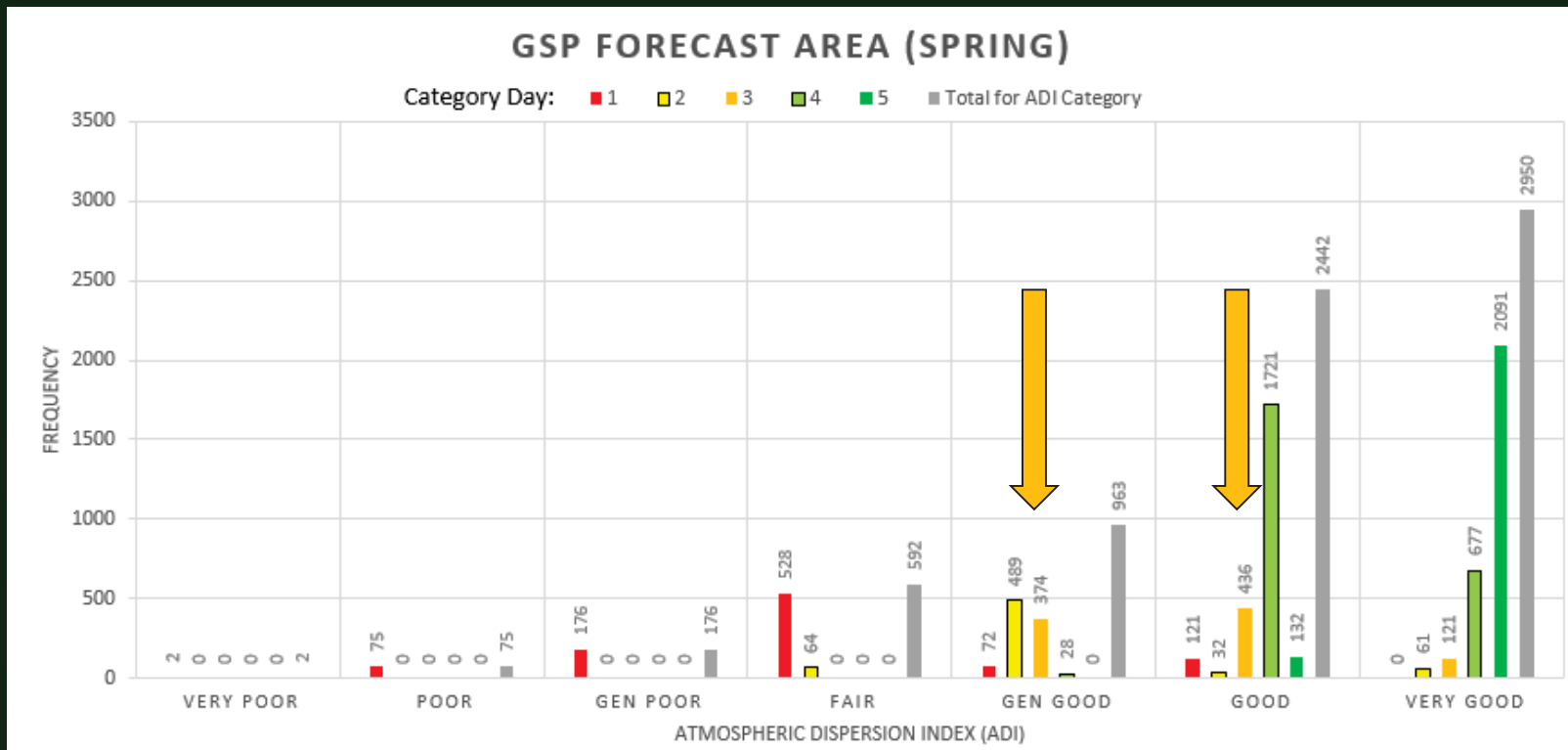


- Category 1 days had the largest range in ADI categories.
- Most frequent is Fair – a day that may have atmospheric stagnations if low wind speed.



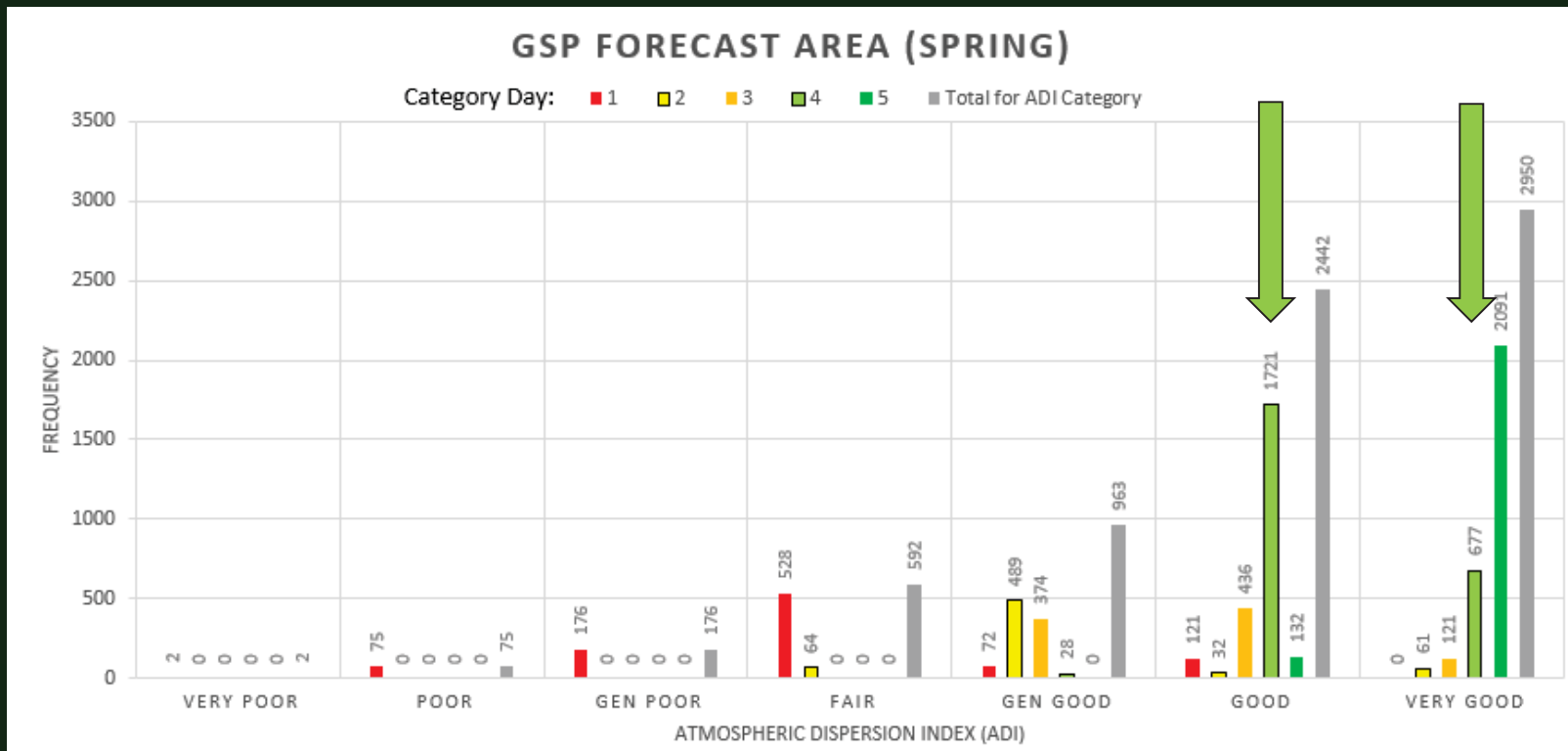
- Category 2 day most frequent ADI category was Generally Good.
- Higher ADI categories may occur if atmosphere is a moderately unstable.





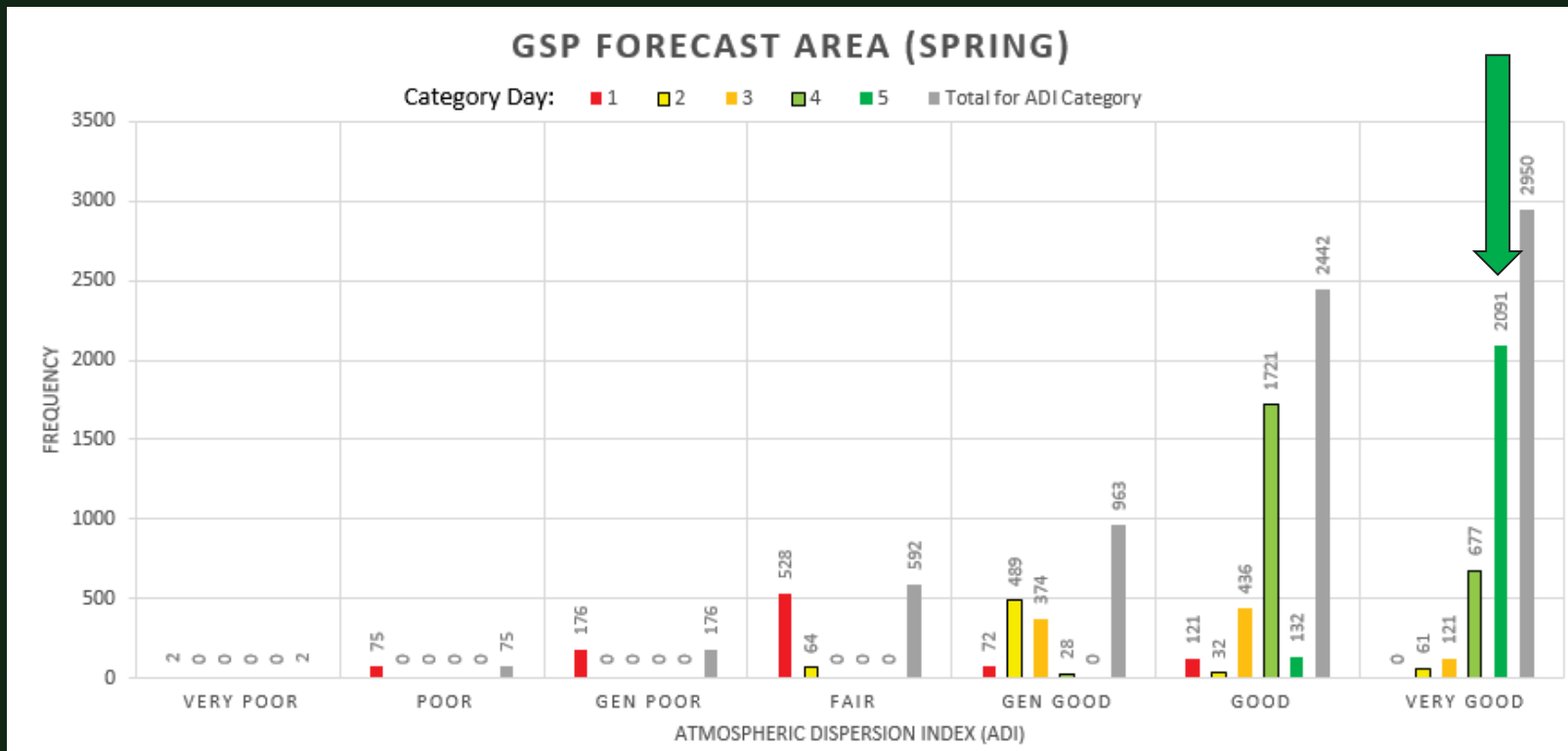
- Category 3 days most frequent ADI category was Generally Good or Good.
- Lavdas says Generally Good typically has good afternoon dispersion of smoke.





- Category 4 days most frequent ADI category was Good or Very Good.
- Lavdas says Good typically has good burning weather conditions.

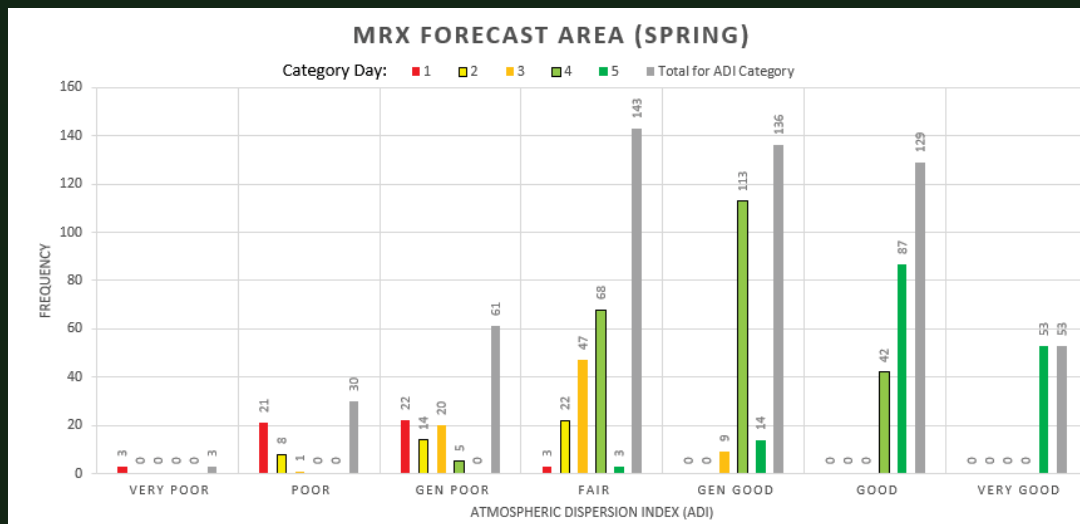
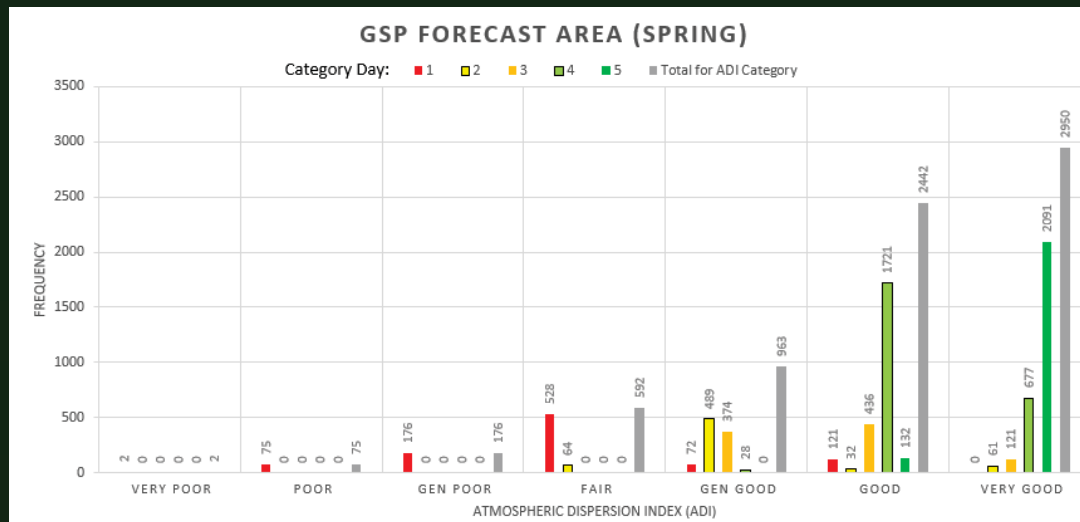




- Category 5 days most frequent ADI category was Very Good.
- Lavdas says Very Good may indirectly indicate hazardous burning conditions.



MRX Has Lower ADI Results



<http://www.ncprescribedfirecouncil.org/>

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The mission of the North Carolina Prescribed Fire Council is to foster cooperation among all parties in North Carolina with an interest or stake in prescribed fire.

PURPOSE AND CHARGE

The North Carolina Prescribed Fire Council brings together natural resource professionals, public and private land managers, and others who support the use of prescribed fire into an organization to:

- Promote public education about the benefits of prescribed fire.
- Advocate for the ability to use prescribed fire as a land management tool now and in the future.
- Increase expertise in prescribed fire by sharing technical and biological information.
- Promote safety, training, and research in the art and science of prescribed fire.
- Review prescribed fire practices, regulations, and policies and suggest improvements.
- Promote best management practices that minimize smoke and air quality impacts from prescribed fires.

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