

AgriTech in action: How to use the Mesonet in schools

Go to <https://cotl.com.au/>



First challenge – what does **COTL** stand for?

Allow students to explore the home page. Discuss what the primary purpose of the **Mesonet** is.

Identify and define **key terms**:

compliance
self-regulate
data-driven

inversion
spray drift
agricultural stewardship

Discussion point: what does this statement mean?

**Everyone is watching.
We can self-regulate or wait for
outsiders to do it for us.**

Select the **Mesonet** tab. This will bring up the map with all the stations across South Australia.

Without logging in, you can access temperature and wind speed data for all sites. This updates every 3 hours compared to every 10 minutes once you are logged in.

Login by selecting the yellow bar at the top of the map or login from the three-bar menu at the top right hand corner of the screen.

Email: freetrialguest@gmail.com

Password: stopspraydrift

Before exploring further use the three-bar menu to select *Observations Provided*. This explains the different data types provided for each site. Return to the Map.

Depending on the amount of time you have and the year level of your students, select from the suggested activities and discussion points on the following pages. Introductory activities could be done as a whole class, then students could work individually or in pairs.

1. Select any **Mesonet** station and investigate the data displayed.
Check that you understand what each data point means.
Discuss:
What do the colours under each data point indicate?
What is an 'inversion' and how can it cause spray drift?
What is the difference between a "hazardous inversion" and a "general inversion"?
Why is it important to know your hazardous inversion risk?
What is the purpose of the Grain Harvest Code of Practice (GHCOP)?
Why are there two different heights for wind speed?
What is Delta T?
Identify your three most important data points and justify your selection.
What data would you like to see ADDED to the **Mesonet** that is not there currently?

Which data points are most important to:

- grain producers during harvest
- livestock farmers at lambing or calving
- spray contractors dealing with summer weeds
- viticulturalists during vintage
- sheep graziers just after shearing

2. Individually, record all the data for a site of interest.

Site name:

HAZARDOUS INVERSION	2HR PREDICTION HAZARDOUS INVERSION	INVERSION: VERTICAL TEMPERATURE DIFFERENCE
GRAIN HARVEST CODE OF PRACTICE	TEMPERATURE	RELATIVE HUMIDITY
WIND – 2M	WIND - 10M	DELTA T
DEW POINT	RAINFALL SINCE 9AM	RAINFALL 24HR TO 9AM
GFDI, WIND @10M	EVAPOTRANSPIRATION	THERMAL TIME SINCE MAY1
VERNALISATION TIME SINCE MAY1	ADJUSTED THERMAL TIME SINCE MAY1	DOWNY MILDEW RISK
ETIELLA SUSCEPTIBILITY	RLEM SUSCEPTIBILITY	FLYSTRIKE RISK (5 DAY)
HEAT/CHILL RISK (5 DAY)	ANIMAL COMFORT INDEX	RAINFALL THIS MONTH
RAINFALL THIS YEAR	TEMPERATURE – MINIMUM TODAY	TEMPERATURE – MAXIMUM TODAY

3. Would today be a good day for spraying at this site? Explain why or why not and identify the data sets you used to help you make this decision.
4. List at least 3 advantages to a farmer in having access to the data provided by the **Mesonet**.
5. Write a paragraph explaining how the data shown could influence the activities and decisions of farmers near that site.
6. Select “data history” at the top of the data display.
Discuss the value of the graphs displayed.
Explain how seeing these graphs does or does not change your response to the previous question.
7. For the site you are investigating, predict how the data would change:
 - overnight
 - at a different time of year
 - in a drought
 - just after a big rain event
8. Allocate a different site across the state to each class member. Select one key data point (eg rainfall) and discuss what the data shows for SA today.
9. In small groups, ask each group member to explore different sites across a region. In a round table discussion, identify what they have learned, what surprised them and what confused them.
10. Return to the **Mesonet** every day for a week, following one site or one data point. Describe any trends observed and explain how a farmer might use this information.
11. Discuss how a farmer’s use of the **Mesonet** might change across the year.
12. Suggest reasons why there are no **Mesonet** sites on the Eyre Peninsula and Yorke Peninsula.
13. “Data can be the best weapon when it is time for difficult decisions”. Discuss this statement with reference to the **Mesonet**.
14. Evaluate how technology such as the **Mesonet** impacts farm sustainability.
15. Currently, users are required to pay for a subscription to access the **Mesonet**. Discuss the benefits and limitations of paying for this information.
16. Reflect on the value for industry professionals like agronomists in having a **Mesonet** subscription.

17. Compare and contrast the value in purchasing and installing a weather station on your own property with paying for a **Mesonet** subscription (but remember, you could do both!).
18. Imagine you are in charge of an industry fund normally used for research and development projects. Outline the business case for funding free access to the **Mesonet** for all SA farmers.

Supporting resources:

https://mesonet.com.au/file_downloads/MidNorthMesonet_User_Guide_v1_Sep2019.pdf

https://mesonet.com.au/file_downloads/RIVERLAND_MALLEE_MESONET_A4_Website_Version.pdf

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Disclaimer: This curriculum resource is designed to support schools in delivering quality food and fibre content to students. It has been developed by Lead Ag Teacher Sue Pratt, AgCommunicators – a registered teacher with more than 30 years' experience in teaching agriculture and science. Prior to using this resource, teachers should conduct a risk assessment in line with their site's curriculum and safety guidelines and check all links are appropriate to the school's online policies. The risk assessment may include provision of specialised Personal Protective Equipment and review of the school's policies and procedures on chemical use.