how to measure wind speed using a venturi meter

Hold the Venturi meter upright at arm's length (see picture below) so you can read the scale. The small white ball will move up the tube as the wind blows.

- In a light breeze, read across from the white ball to the scale on the left. The Venturi meter measures wind speed in kilometres an hour.
- In a strong wind the white ball will rise to the top of the tube. Use your finger to cover the top of the red tip and read across to the scale on the right.

do's and don'ts

✔ Hold the Venturi meter perfectly vertical - that's straight up and down.

✔ Be gentle with the instrument.

✘ Don't use it to dig in the sand.

how it works

The Venturi meter has a narrow tube running from top to bottom, with a small opening at the top.

When the wind blows over the top of the instrument a slight vacuum is created in the tube and the white ball is sucked up. The stronger the wind, the greater the suction and the further up the tube the white ball will travel.

This phenomenon is known as the Bernouilli principle and is named after Daniel Bernouilli, a Swiss scientist who first described it more than 200 years ago. The Venturi meter is named after Italian physicist Giovanni Battista Venturi (1746-1822).

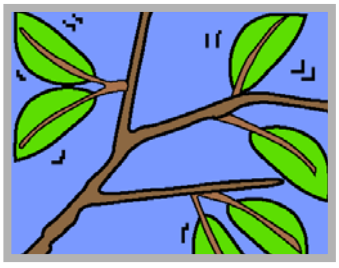
wind

We cannot see the wind, but we quite often see what it is doing or what it has done.

Wind in tropical cyclones and tornadoes can cause enormous damage, but most of the time the wind is gentle rather than destructive.

Knowing about the wind is important for many reasons:

- for the safety of passengers in aircraft, of building workers in high places, of fishermen at sea, and of residents in cyclone-prone areas.
- it helps to fly kites, fills the sails of yachts, and influences sports events.
- for forecasting the weather – to predict when a sea breeze will provide relief on a hot day, or how quickly pollution will be carried away from cities.



Beaufort wind scale

On the Beaufort scale, wind speeds are divided into 12 categories, each of which describes the physical effect of the wind.

0: calm (< 1 km/h , < 1 knot)

Smoke rises vertically.

1: light air (1-5 km/h , 1-3 knots)

Wind direction shown by smoke-drift, but not by wind vanes.

2: light breeze (6-11 km/h , 4-6 knots)

Wind felt on face; leaves rustle; ordinary vanes moved by wind.

3: gentle breeze (12-19 km/h , 7-10 knots)

Leaves, twigs in constant motion; wind extends light flag.

4: moderate breeze (20-28 km/h, 11-16 knots)

Raises dust and loose paper; small branches are moved.

5: fresh breeze (29-38 km/h , 17-21 knots)

Small trees in leaf begin to sway; crested wavelets form on inland waters.

6: strong breeze (39-49 km/h , 22-27 knots)

Large branches in motion; whistling heard in telephone wires; umbrellas hard to use.

7: near gale (50-61 km/h , 28-33 knots)

Whole trees in motion; inconvenience felt when walking against the wind.

8: gale (62-74 km/h , 34-40 knots)

Breaks twigs off trees; generally impedes progress.

9: strong gale (75-88 km/h , 41-47 knots)

Slight structural damage occurs (chimney pots and roof tiles removed).

10: storm (89-102 km/h , 48-55 knots)

Seldom experienced inland; trees uprooted; considerable structural damage occurs.

11: violent storm (103-117 km/h , 56-63 knots)

Very rarely experienced on land; accompanied by widespread damage.

12: cyclone/hurricane (118+km/h, 64+knots)