

ASK EVERY WATCH, IN THIS ORDER

1 · Which way is it going?

Not the wind on deck — the *high* cloud, relative to the wind at your back. The most useful thing you can see without an instrument.

2 · Thickening or thinning?

Lowering and thickening means weather coming. Lifting, breaking, edges going crisp means it is leaving. The trend is the signal; one look is nothing.

3 · What does the glass say?

Sky proposes, barometer confirms. A falling glass under a *clear* sky means look harder — something is coming you have not seen.

WARM FRONT — UP TO TWO DAYS OF WARNING

High cloud: left to right Wind: backs and freshens, then veers hard at the passage Glass: falls steadily, then levels

24–48 hr Mare’s tails <i>Cirrus uncinus</i> Thin white hooks very high. First thing a front sends ahead. GLASS steady WIND unchanged DO note the time	12–24 hr Halo round sun <i>Cirrostratus</i> Blue goes milky. Clean 22° ring of light. The sky committing. GLASS starts falling WIND backing DO plan on rain	6–12 hr Sun through ground glass <i>Altostratus</i> Grey sheet, watery disc, and the tell — <i>no shadows on deck</i>. GLASS falling steadily WIND backed, fresh DO secure while dry	0–6 hr Low, grey, raining <i>Nimbostratus</i> Base down, light flat, steady rain — not showers. Visibility closes. GLASS falls then flattens WIND strong, backed DO be set already	Passage Into the warm sector Rain to drizzle, temp jumps, and the wind <i>veers</i> — often 30° or more. Sea fog likely. GLASS levels WIND veers sharply DO reset for the shift
--	--	---	---	---

The lull is not a clearance. Past the warm front you are in the warm sector — muggy, overcast, poor visibility — and the cold front is behind it, usually within hours.

COLD FRONT — HOURS, THEN MINUTES

High cloud: right to left Wind: sudden hard veer with the gust Glass: stops falling, then rises sharply

Half a day Fair-weather cumulus <i>Cumulus humilis</i> Flat-bottomed puffs, all one height, wider than tall. Fine on their own. GLASS steady/slow fall WIND moderate DO watch for growth	2–6 hr Towers taller than wide <i>Cumulus congestus</i> Hardening to cauliflower and climbing. Unstable, and it means to continue. GLASS falling WIND gusty, variable DO get sea room	1–3 hr The anvil <i>Cumulonimbus incus</i> Flat top spreads <i>downwind</i> — it points where the cell is going. GLASS may steady WIND uneasy, light DO decide now	Minutes Shelf cloud <i>Arcus</i> Dark low wedge on the leading edge, ragged beneath. Cold outflow lifting air. GLASS fall stops dead WIND before the rain DO act, don’t watch	After Clearance Cold, clean, hard-edged. Miles of visibility, cumulus in sharp relief. GLASS rising, maybe fast WIND veered NW, squally DO showers for hours
---	--	---	--	--

The gust front runs ahead of the rain — sometimes by miles. Wind can veer 90° and double in strength while the sky above you is still dry and the water ahead still looks flat. Act on the shelf cloud, not on the rain.

CROSSED WINDS — BACK SQUARELY TO THE SURFACE WIND, THEN WATCH THE HIGHEST CLOUD

Crossing left → right

Deteriorating. Warm front and its low ahead of you. Cloud thickens and lowers, glass falls, rain within a day.

Crossing right → left

Improving. System clearing, pressure building behind it. Cloud breaks and lifts, glass rises, wind settles NW.

Running with the wind

Little change. No front crossing you. What you have is what you keep. Check again in a few hours.

Why: Buys Ballot — back to the wind, the low is on your left, about 20–30° forward of abeam. High cloud is steered by the upper winds round that same system, so when the two cross at right angles you are looking at a front.

WHAT YOU SEE, AND WHAT FOLLOWS

WHAT YOU SEE	LEAD	WHAT IT MEANS	WHAT TO DO
Shelf or roll cloud <i>Arcus</i>	MINUTES	Cold outflow lifting air ahead of a storm. Gust front already under it.	Reduce now. Crew inboard, hatches shut, heading chosen before it hits.
Pouches under an anvil <i>Mammatus</i>	MINUTES	Sinking cold pockets on a mature storm. Severe turbulence in the cell.	Do not pass beneath. Open the range while you still choose.
Hard dark line on the water, white beneath	MINUTES	Wind already on the surface. The white is spray lifting off the leading edge.	Last warning you get. Wind on bow or quarter, never abeam.
Cumulus taller than wide by midday <i>Congestus</i>	1–4 HR	Unstable air with moisture. Grows into showers and squalls through the afternoon.	Shorten the passage or pick shelter while it is still your choice.
Turrets on a mid-level sheet at breakfast <i>Ac castellanus</i>	SAME DAY	Cold over warm aloft. The atmosphere is already unstable early.	Best morning warning of afternoon thunderstorms. Treat it as a squall day.
Anvil spreading toward you <i>Cb incus</i>	1–3 HR	The anvil blows out downwind, so it points the cell's heading.	Read the anvil and alter early. Cheaper than altering late.
Lens cloud standing over high ground <i>Ac lenticularis</i>	PRESENT	Standing wave. Cloud stationary while air pours through it.	Strong wind aloft; violent gusts and rotor in the lee. Wide berth off headlands.
Cloud lowering and thickening steadily	6–12 HR	An ordinary front approaching. The trend matters more than the cloud.	Secure while dry and comfortable. Nothing gets easier from here.
Halo round sun or moon <i>Cirrostratus</i>	12–24 HR	Ice crystals bending light 22°. Leading edge of a warm front's shield.	Good odds of rain within a day. Start the clock, watch the glass.
Mare's tails <i>Cirrus uncinus</i>	24–48 HR	Hooked ice cloud thrown ahead by the jet. Earliest visible warning there is.	Note it and the time. Cirrostratus next confirms the front.
Mackerel sky <i>Alto cumulus</i>	12–24 HR	Rippled rows. Moisture and instability arriving at mid-level.	Weather breaks within the day. With mare's tails alongside, sooner.
Cloud lifting, breaking, edges crisp	IMPROVING	Air sinking and drying under building pressure. The system has gone through.	Nothing. The sky is telling you the worst is behind you.

THE GLASS — CHANGE OVER THREE HOURS

under 0.1 mb	Steady. What you have, you keep for a while.
0.1 — 1.5	Slowly. Ordinary drift, no alarm.
1.6 — 3.5	Something is coming. Expect a change in the wind.
3.6 — 6.0	Quickly. Substantial wind arriving or leaving.
over 6.0	Very rapidly. Gale conditions likely.

Per hour: 1–3 mb means strong winds possible; over 3 mb means gales expected. A glass unusually high for days means change will come slowly — settled patterns do not break in an afternoon.

OLD SAYINGS THAT HOLD, AND WHY

Red sky at night, sailor's delight; red sky in morning, sailors take warning.
Weather tracks west to east in mid-latitudes. Red sunset = clear dry air to the west, where your weather comes from. Red dawn = eastern sun lighting cloud that has already arrived. Fails in the tropics.

Mare's tails and mackerel scales make tall ships carry low sails.
Cirrus and alto cumulus together is moisture *and* instability aloft — the standard front signature. The real lesson: two independent signs agreeing beat either one alone.

Rain before wind, halyards and sheets mind; wind before rain, soon you may make sail again.
Rain first is the warm-front pattern with much more behind it. Wind first is a squall line — violent, short. The order of arrival tells you how long you are in for.