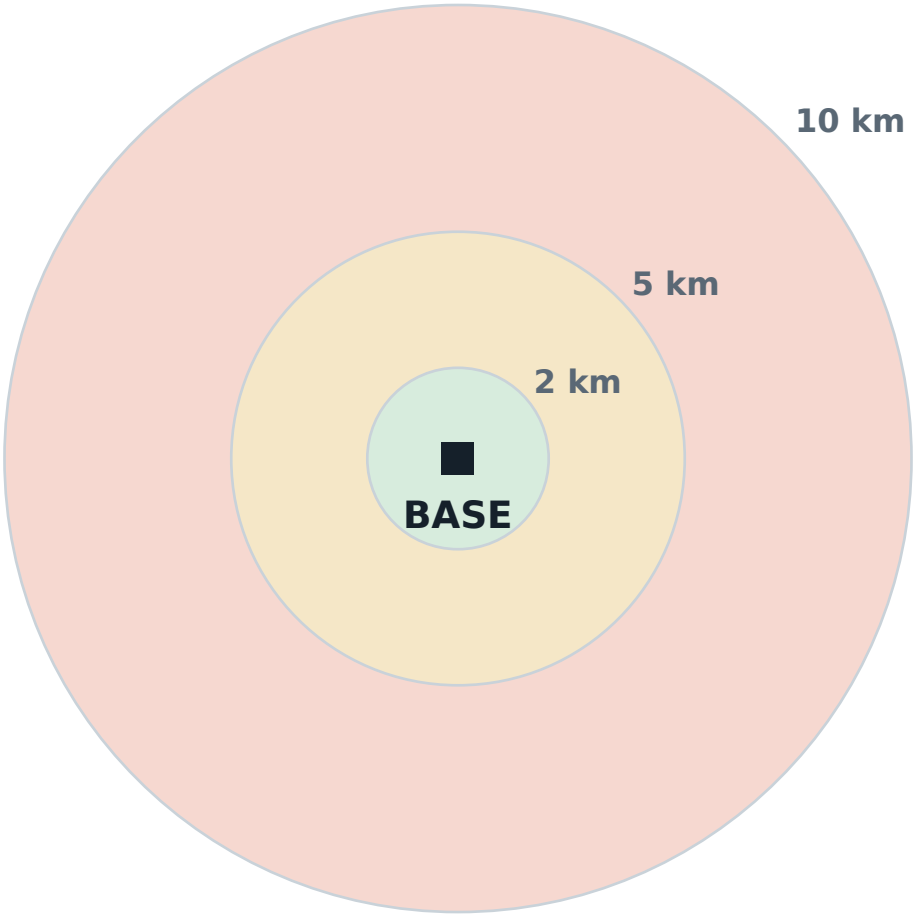
YOUR FIRST FIX

OffTrack Experience base · Øverbygd · October – November 2026

Three stars, a tray of oil, a watch and your sextant. You will find where you are standing, and then check it against the base.



THE ANSWER YOU ARE AIMING FOR

68° 59.6' N 18° 57.3' E

- **Within 2 km** — excellent
- **2 – 5 km** — a good first fix
- **5 – 10 km** — fine for a first try

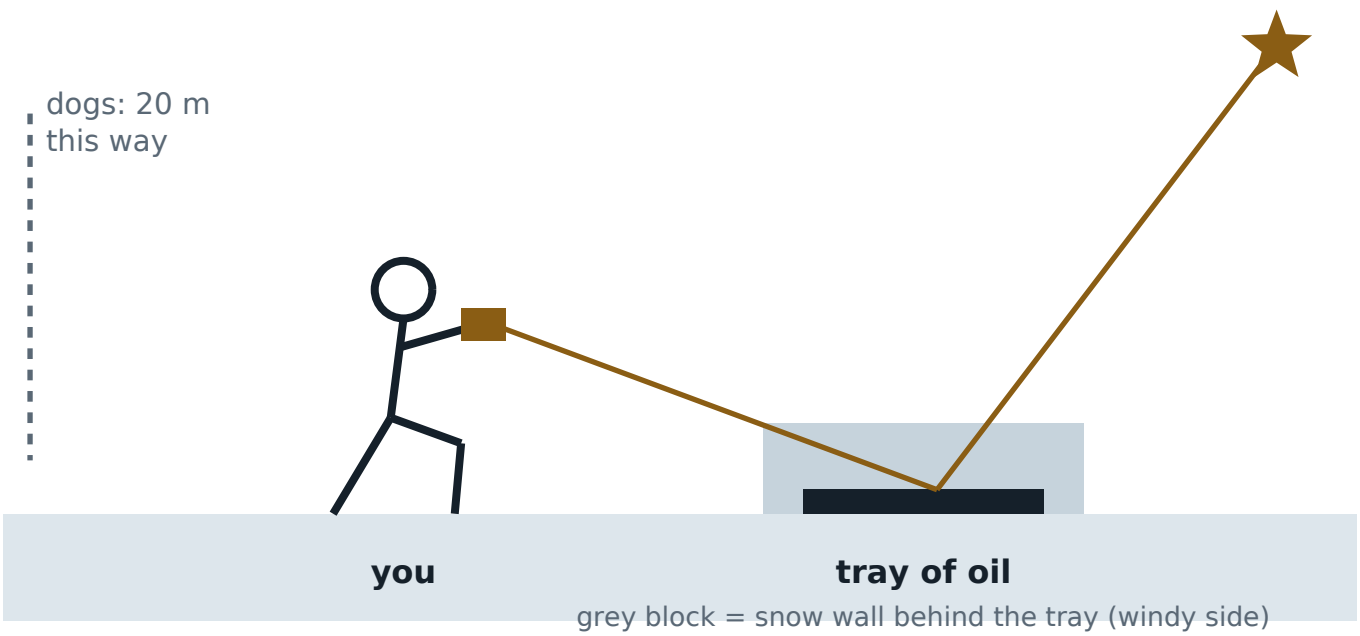
More than 10 km off? Something small went wrong. The checklist on the last page finds it.

You need: sextant · tray + oil · watch · red head-torch · pencil · this sheet · a phone for the last step

STEP 1

Set up the oil tray

About 15 minutes. Start around 20:30.

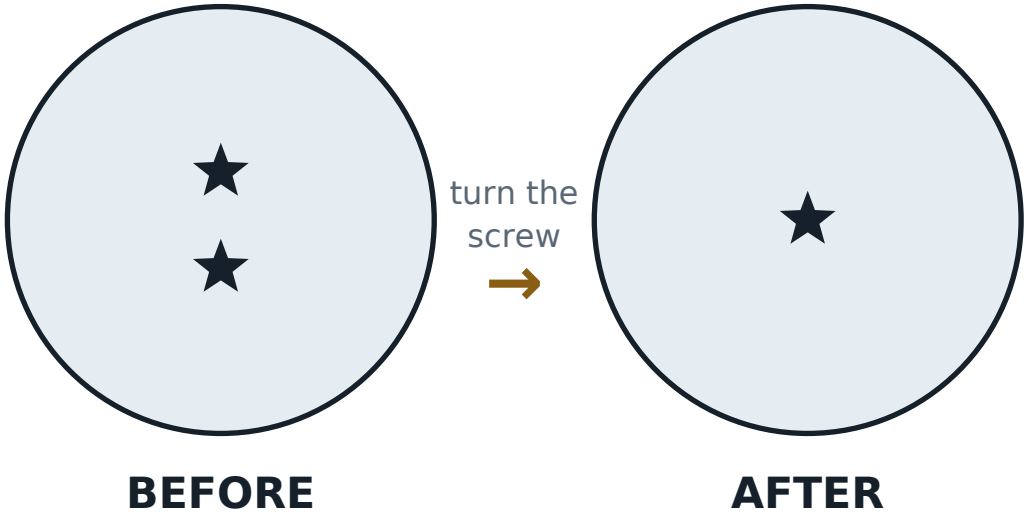


1. Clear night. Walk 20 m away from the dogs.
2. Stamp the snow flat. Put down the board, then the tray.
3. Pour oil about 5 mm deep (0W motor oil, at air temperature).
4. Snow wall on the windy side. Wait 5 minutes.
5. Look into the oil: it must be still, like black glass.

STEP 2

Index error

Every night, after the sextant has been outside 20 minutes.



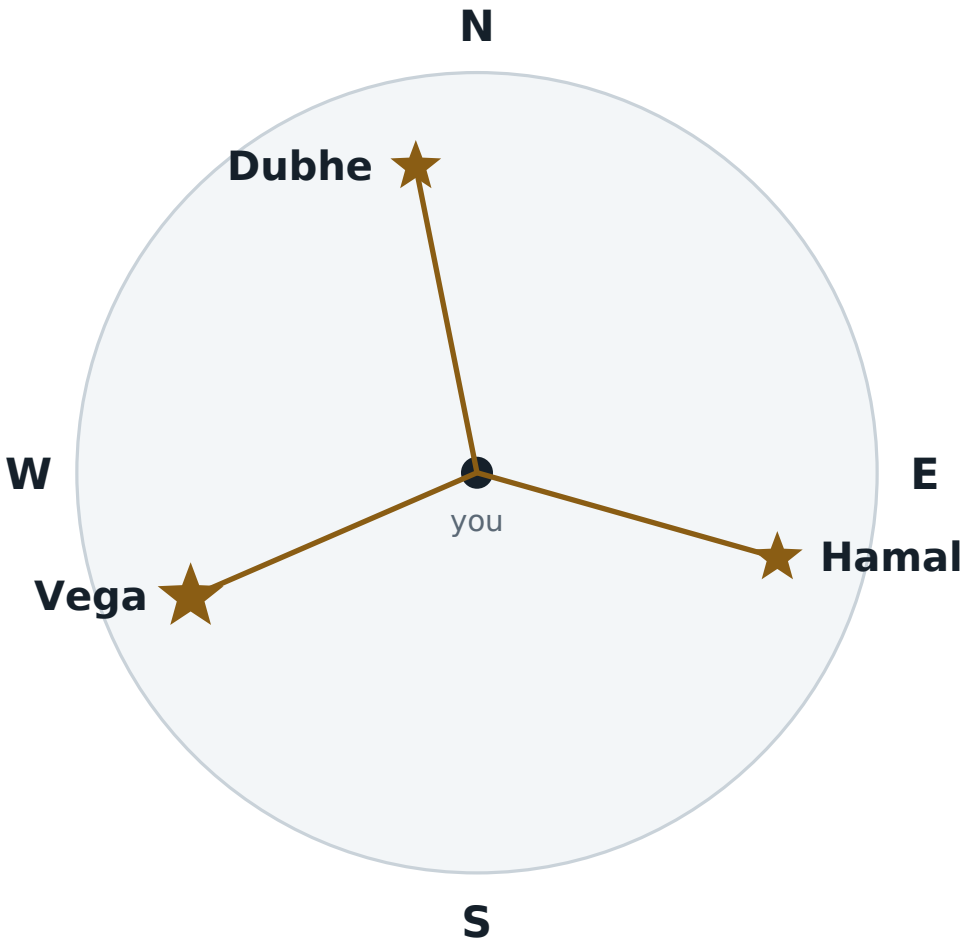
1. Set the sextant to 0°. Look at Vega through it.
2. You see two Vegas. Turn the small screw until they are one.
3. Read the scale. Just past 0 (on the arc): write it with a plus, e.g. +2.4'.
4. Just below 0 (off the arc): write it with a minus, e.g. −1.8'.

INDEX ERROR =

STEP 3

Tonight's three stars

Vega first (brightest), then Dubhe, then Hamal.



Where to look at 21:00 in mid-October (seen from above, north up)

SET THE SEXTANT TO ABOUT (at 21:00 local time)

Date	Vega	Dubhe	Hamal
1 Oct	**109°**	**85°**	**53°**
15 Oct	**101°**	**83°**	**62°**
1 Nov	**78°**	**82°**	**81°**
15 Nov	**69°**	**84°**	**87°**
29 Nov	**60°**	**88°**	**89°**

It is only a starting point: the star shows up within a degree or two of it.

STEP 4

Shoot each star

Same for all three. Take 3 sights of each.

1. Set the sextant to the number from step 3.
2. Kneel behind the tray. Find the star's reflection in the oil.
3. Look at it through the sextant. Turn the screw until the sky star sits exactly on the oil star.
4. Say “MARK”. Your partner writes the time to the second.
5. Read the scale and write it down.

Write the time in UTC:
until 25 Oct: UTC = local − 2 h. From 25 Oct: UTC = local − 1 h.

	TIME (UTC)	READING
VEGA	: :	° ′
	: :	° ′
	: :	° ′
DUBHE	: :	° ′
	: :	° ′
	: :	° ′
HAMAL	: :	° ′
	: :	° ′
	: :	° ′

Circle the best sight of each star (the one that fits the other two).

STEP 5

Work it out and check

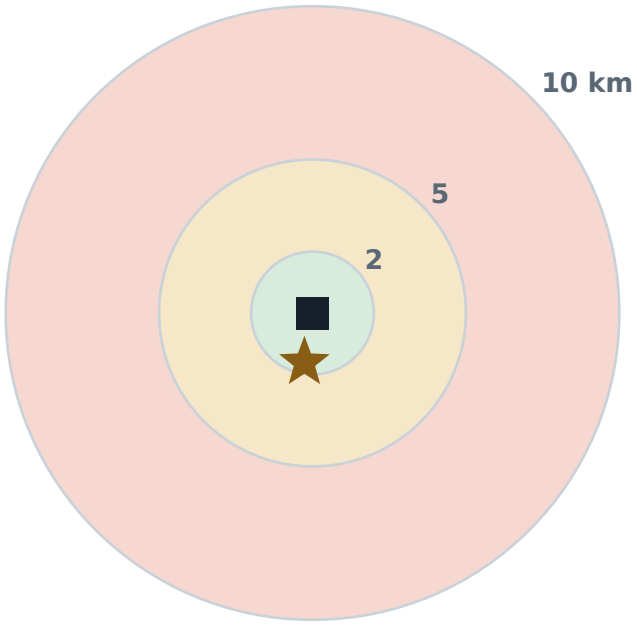
In the warm, on a phone. About 10 minutes.

1. Open celestic-nav.pages.dev → Calculator.
2. Fill in: date · Times are UTC · rough position 69.0 N, 19.0 E · index error · temperature · Tray of oil.
3. Add your three stars: time and reading of the circled sight.
4. Read the FIX. Press “Show on the map”. The rings are 2, 5 and 10 km around the base.

WORKED EXAMPLE · 15 Oct 2026 · index error +2.4' · −5 °C

Vega	19:00:00 UTC	100° 37.9'	(local 21:00)
Dubhe	19:06:30 UTC	82° 18.6'	(local 21:06)
Hamal	19:13:00 UTC	64° 45.3'	(local 21:13)

Fix: 68° 58.8' N 18° 56.9' E → 1.6 km from the base



★ = the example fix

MORE THAN 10 KM OFF? CHECK:

- ☐ Times in UTC, not local time?
- ☐ Index error: + or − the right way?
- ☐ Did you halve (divide by 2)?
- ☐ Right star? Vega is the brightest.
- ☐ Was the oil completely still?