ANTICIPATORY ACTION · TROPICAL CYCLONES · FIJI

Simulation exercise: three cyclones that never happened

We follow three fictional storms forecast by forecast, the way the monitoring system would see them, and stop at each step to see which triggers activate.

> ⚠️ **Exercise only.** Cyclones Alpha, Bravo and Charlie are invented. Their forecasts are written in RSMC Nadi's format and checked with the **same code** that monitors real forecasts, so every wind-exposure number shown is what the system would compute. Rainfall fields are invented for the exercise, and the emails are mock-ups. Times are Fiji time, counted from Day 1.

REMINDER

Three ways the framework can activate

Readiness

≥ 5,000 people in the zone forecast to get **64-kt** (hurricane-force) winds, anywhere in the **120-hour** forecast

Action

The same, but within the first **72 hours** of the forecast

Observational

≥ 190 mm of rain over two days, averaged over the whole country (NASA IMERG), while the storm is within 250 km of Fiji

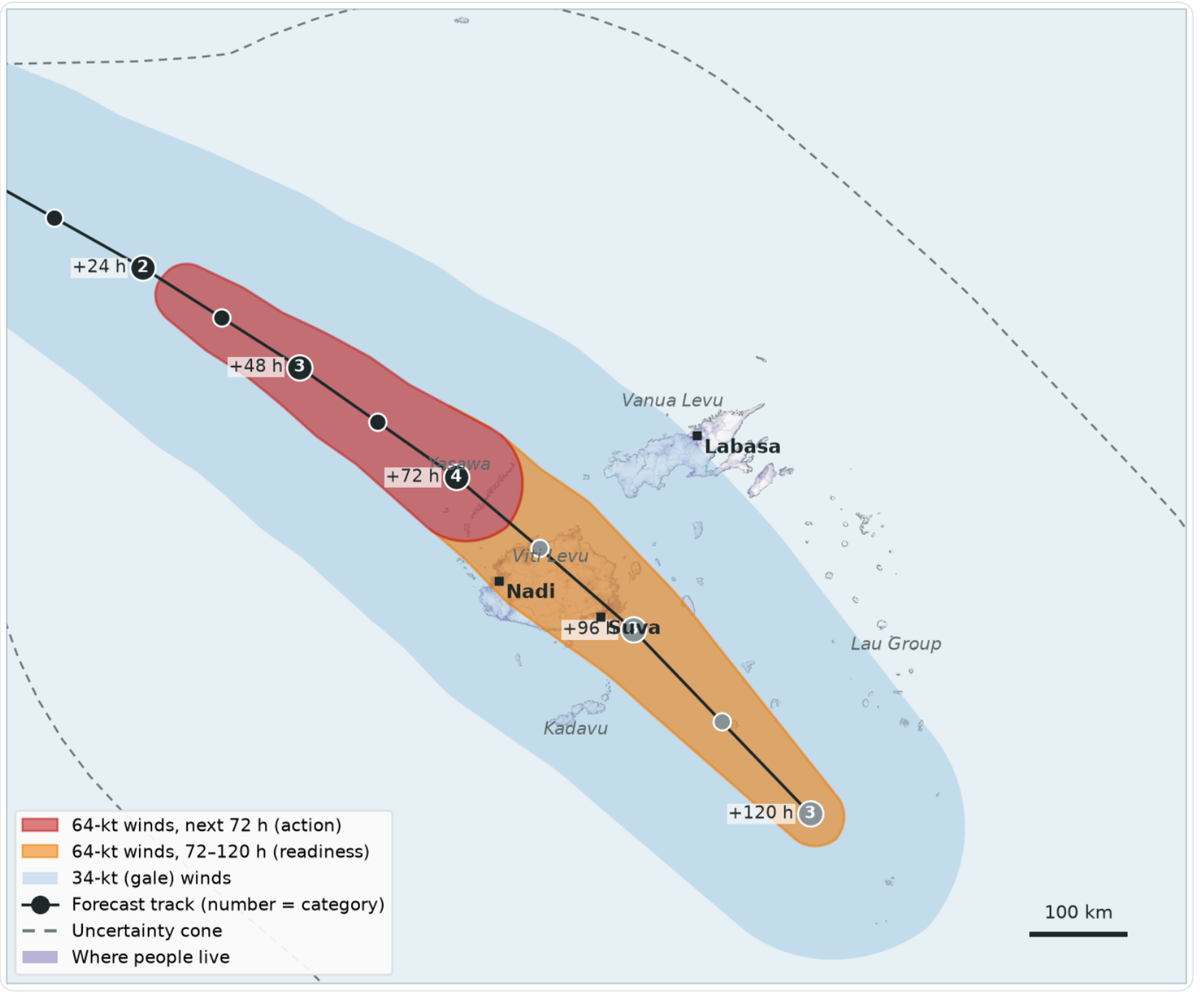
Every RSMC Nadi forecast is checked automatically as soon as it arrives; rainfall is checked once a day. 64 knots (118 km/h) is the minimum for a Category 3 cyclone. Because the 72-hour forecast is part of the 120-hour forecast, action can only activate together with, or after, readiness.

HOW TO READ THE SLIDES

Each slide is one forecast

- **Red**: 64-kt winds in the next 72 hours — counts for **action** (and readiness).
- **Orange**: 64-kt winds 72 to 120 hours ahead — counts for **readiness** only.
- **Light blue**: gale-force (34-kt) winds — shown for context, not part of the trigger.
- **Dots**: forecast position every 12 hours (black up to 72 h, grey after); the number is the category.
- **Purple**: where people live. The trigger counts the people under the red and orange zones.
- **Dashed line**: uncertainty cone — for information only, the trigger uses the forecast track.

STATUS IN THE TABLE	
Not reached	below the threshold
ACTIVATED	activates on this forecast
✓ Activated Day 1	activated earlier



THE EXERCISE

Three scenarios

1️⃣

Cyclone Alpha

Readiness, then action. A Category 4 heads straight for Viti Levu. Readiness activates four days out, action three days out.

2️⃣

Cyclone Bravo

Readiness, then nothing. Early forecasts take it over Vanua Levu; it turns away. Readiness activates; action never does.

3️⃣

Cyclone Charlie

Observational only. A weaker, slow storm that never brings hurricane-force winds, but stalls and floods Viti Levu.

REMINDER

What happens when a trigger activates

📧 **Every activation**: an automated email from OCHA goes to the trigger distribution list as soon as the forecast is checked (or at the daily rainfall check). A separate information email with maps and numbers follows every forecast.

🟧 **Readiness**: CERF sends approval letters and releases funds to the agencies. Agencies can spend the readiness share and start readiness activities.

🟥 **Action**: the rest of the CERF funds can be used and all anticipatory actions start. IFRC transfers the pre-approved DREF funds to Fiji Red Cross.

🟪 **Observational**: treated like the action trigger — all anticipatory actions start. (The framework does not spell this out; this is how it is applied in this exercise.)

⏸️ For outlier storms that clearly will have minimal impact, the Resident Coordinator, in consultation with the government, may pause an activation.

EXERCISE · FICTIONAL STORM

SCENARIO 1 OF 3

Cyclone Alpha

Readiness, then action

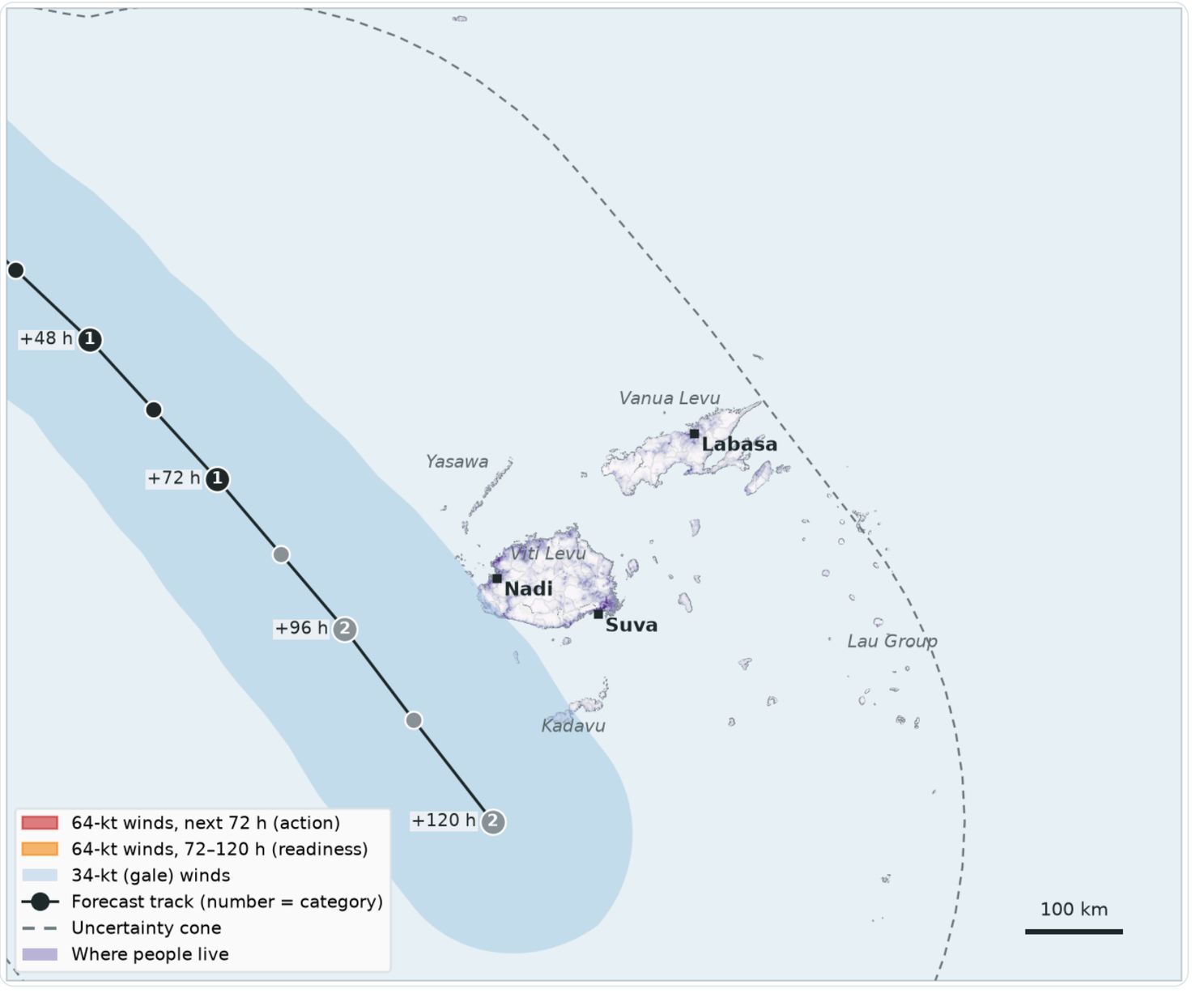
EXERCISE · FICTIONAL STORM

CYCLONE ALPHA · FORECAST 1 OF 5

Day 1, 00:00

RSMC Nadi issues its first forecast for Cyclone Alpha, west of Vanuatu. It is forecast to reach only Category 2: no hurricane-force (64-kt) winds anywhere, so nobody is in the red or orange zone.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



EXERCISE · FICTIONAL STORM

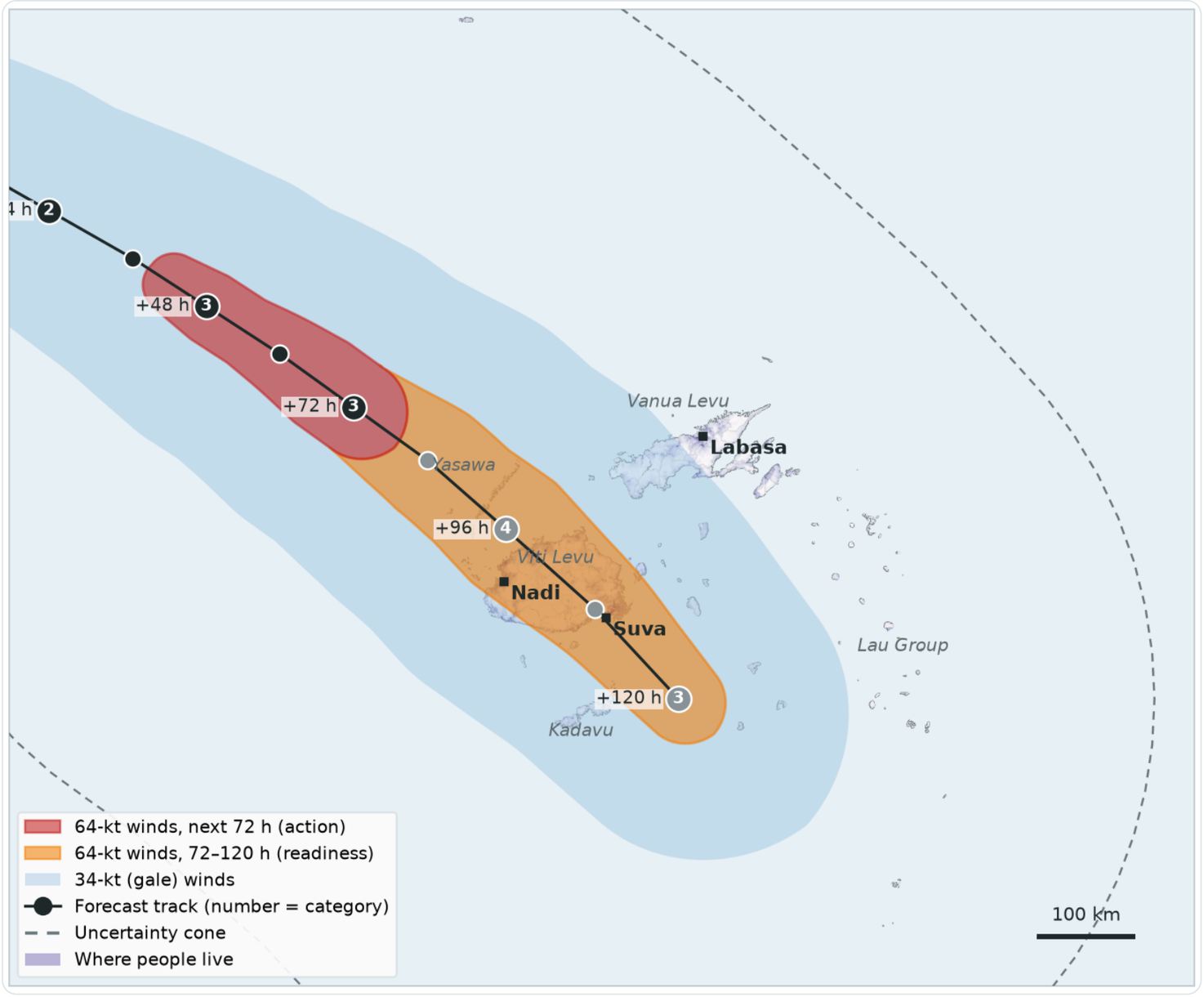
CYCLONE ALPHA · FORECAST 2 OF 5

Day 1, 12:00

Alpha is now forecast to become a **Category 4** cyclone and cross Viti Levu in about four days. **649,967 people** are in the 64-kt zone of the 120-hour forecast — but none in the first 72 hours.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**649,967** people in 64-kt zone threshold 5,000	ACTIVATED
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–

Readiness trigger activated. An automated email goes to the trigger distribution list. CERF sends approval letters to agencies and readiness activities start.



EXERCISE · FICTIONAL STORM

CYCLONE ALPHA · DAY 1, 12:00

The readiness trigger email

As soon as the forecast is checked, the monitoring system sends an email like this automatically to the trigger distribution list (framework Annex 4).

Mock-up for the exercise, based on the live email template.

Readiness trigger activated. An automated email goes to the trigger distribution list. CERF sends approval letters to agencies and readiness activities start.

[EXERCISE] Anticipatory action Fiji: Cyclone Alpha readiness trigger ACTIVATED

This is an automated message produced by the OCHA Centre for Humanitarian Data.

Dear United Nations Resident Coordinator,
Dear National Disaster Risk Management Office,
Dear Line Ministries,
Dear Colleagues,

The **readiness trigger** of the National Anticipatory Action Framework for Tropical Cyclones in Fiji **has been reached** in line with the 72-hour forecast for cyclone Alpha produced at Day 1, 12:00 (Fiji time) by the Fiji Meteorological Service, operators of Regional Specialized Meteorological Centre (RSMC) Nadi.

All **readiness** activities in line with the framework document should now commence. CERF funding to UN agencies is being released. OCHA may convene a meeting of the participating partners.

Best wishes and good luck,

OCHA Centre for Humanitarian Data

Contact

Contact the OCHA Centre for Humanitarian Data at ocha-datascience@un.org with any questions or feedback.

OCHA

OCHA Centre for Humanitarian Data

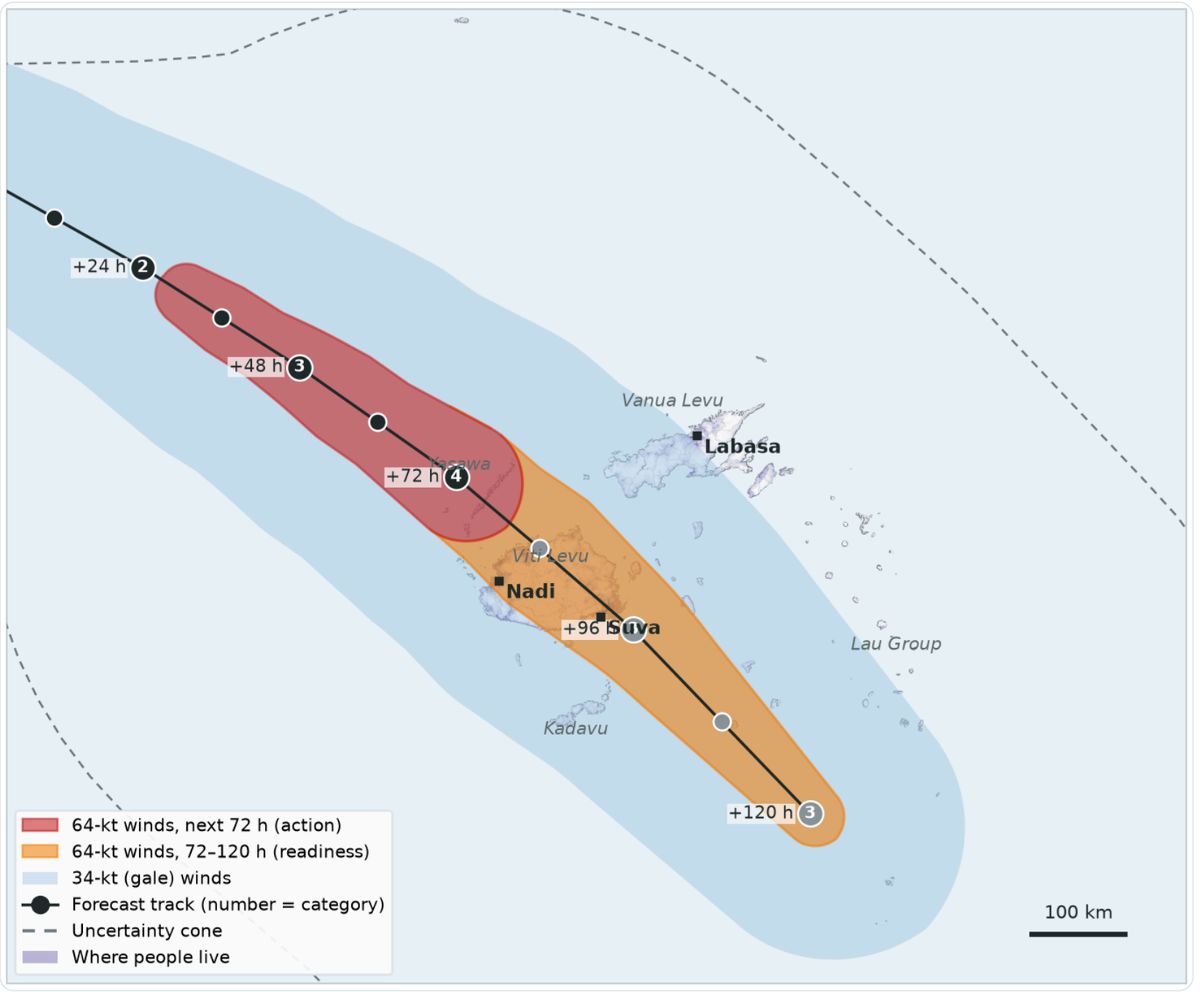
EXERCISE · FICTIONAL STORM

CYCLONE ALPHA · FORECAST 3 OF 5

Day 2, 00:00

The track holds. Within the next 72 hours, hurricane-force winds now reach the Yasawa Group: **3,901 people** — just below the 5,000 threshold. Readiness is already activated; action is not reached yet.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**637,137** people in 64-kt zone threshold 5,000	✓ Activated Day 1, 12:00
Action 72-hour forecast	**3,901** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



EXERCISE · FICTIONAL STORM

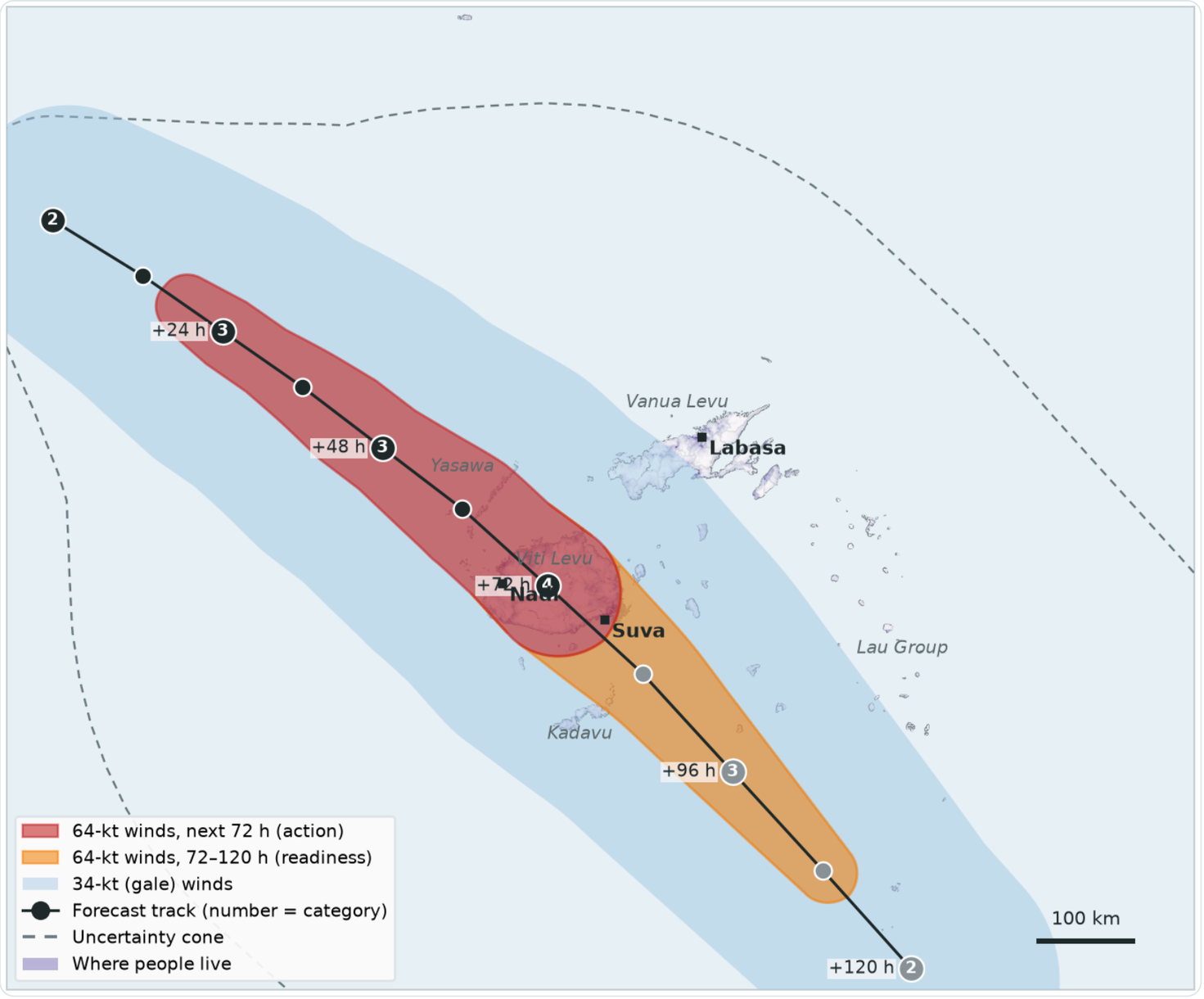
CYCLONE ALPHA · FORECAST 4 OF 5

Day 2, 12:00

Landfall is now about three days away: **658,281 people** are in the 64-kt zone within the 72-hour forecast.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**678,500** people in 64-kt zone threshold 5,000	✓ Activated Day 1, 12:00
Action 72-hour forecast	**658,281** people in 64-kt zone threshold 5,000	ACTIVATED
Observational 2-day rainfall	IMERG satellite, checked daily	–

Action trigger activated. An automated email goes to the trigger distribution list. All anticipatory actions start, and IFRC transfers the pre-approved DREF funds to Fiji Red Cross.



EXERCISE · FICTIONAL STORM

CYCLONE ALPHA · DAY 2, 12:00

The action trigger email

As soon as the forecast is checked, the monitoring system sends an email like this automatically to the trigger distribution list (framework Annex 4).

Mock-up for the exercise, based on the live email template.

Action trigger activated. An automated email goes to the trigger distribution list. All anticipatory actions start, and IFRC transfers the pre-approved DREF funds to Fiji Red Cross.

[EXERCISE] Anticipatory action Fiji: Cyclone Alpha action trigger ACTIVATED

This is an automated message produced by the OCHA Centre for Humanitarian Data.

Dear United Nations Resident Coordinator,
Dear National Disaster Risk Management Office,
Dear Line Ministries,
Dear Colleagues,

The **action trigger** of the National Anticipatory Action Framework for Tropical Cyclones in Fiji **has been reached** in line with the 72-hour forecast for cyclone Alpha produced at Day 2, 12:00 (Fiji time) by the Fiji Meteorological Service, operators of Regional Specialized Meteorological Centre (RSMC) Nadi.

All activities in line with the framework document should now commence. OCHA may convene a meeting of the participating partners.

Best wishes and good luck,

OCHA Centre for Humanitarian Data

Contact

Contact the OCHA Centre for Humanitarian Data at ocha-datascience@un.org with any questions or feedback.

OCHA

OCHA Centre for Humanitarian Data

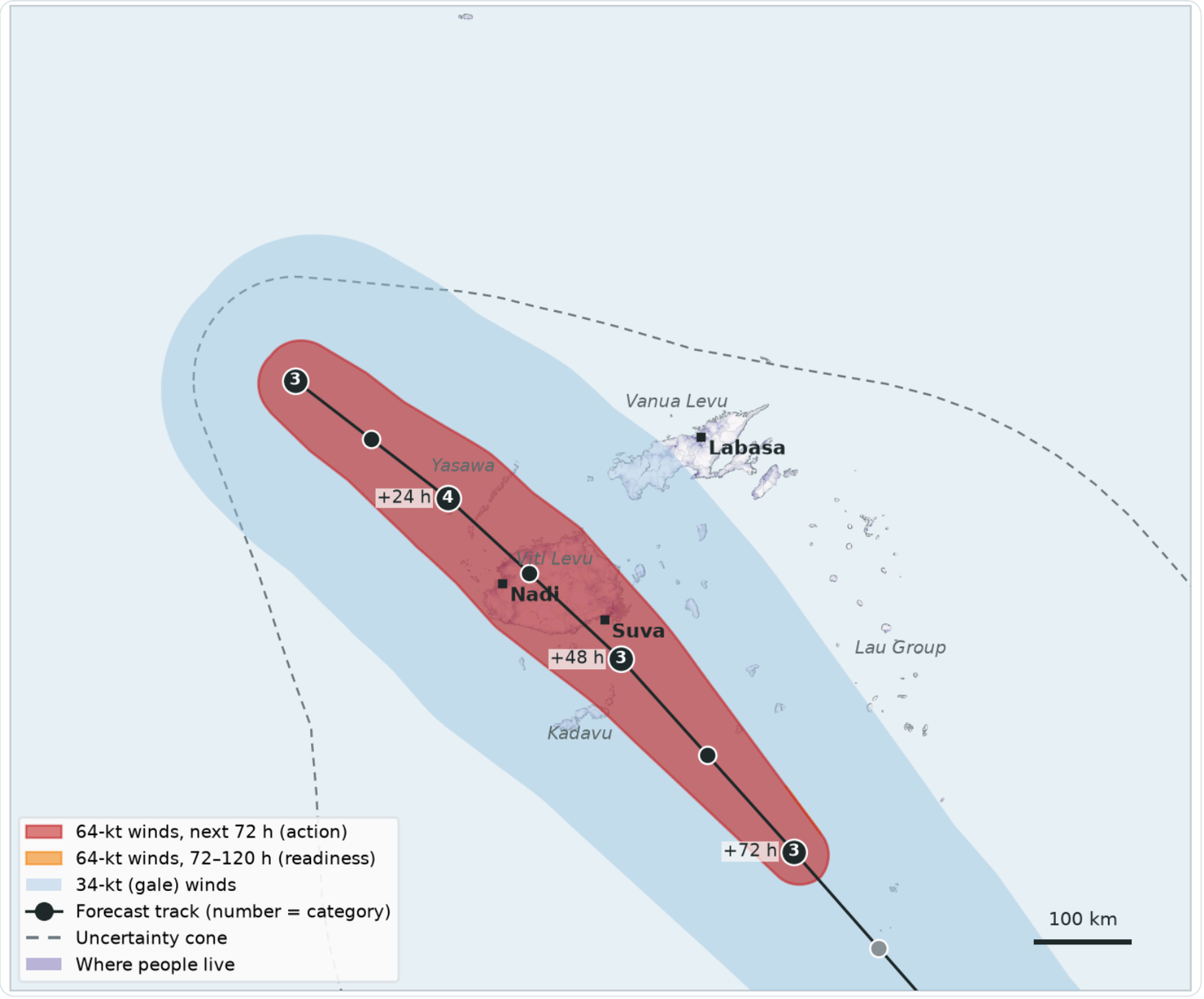
EXERCISE · FICTIONAL STORM

CYCLONE ALPHA · FORECAST 5 OF 5

Day 4, 00:00

Alpha is a Category 4 cyclone, about a day and a half from landfall on Viti Levu. Both forecast triggers have already activated. RSMC Nadi forecasts keep coming, and OCHA keeps sending a forecast information email for each one.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**678,270** people in 64-kt zone threshold 5,000	✓ Activated Day 1, 12:00
Action 72-hour forecast	**678,270** people in 64-kt zone threshold 5,000	✓ Activated Day 2, 12:00
Observational 2-day rainfall	IMERG satellite, checked daily	–



EXERCISE · FICTIONAL STORM

CYCLONE ALPHA · RECAP

Readiness, then action

WHEN	WHAT CAME IN	RESULT
Day 1, 00:00	Forecast 1: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 1, 12:00	Forecast 2: 649,967 people in 64-kt zone (120 h), 0 (72 h)	READINESS ACTIVATED
Day 2, 00:00	Forecast 3: 637,137 people in 64-kt zone (120 h), 3,901 (72 h)	no new activation
Day 2, 12:00	Forecast 4: 678,500 people in 64-kt zone (120 h), 658,281 (72 h)	ACTION ACTIVATED
Day 4, 00:00	Forecast 5: 678,270 people in 64-kt zone (120 h), 678,270 (72 h)	no new activation

Readiness gave about **four days** of warning before landfall, and action about **three days**.

EXERCISE · FICTIONAL STORM

SCENARIO 2 OF 3

Cyclone Bravo

Readiness, then nothing

EXERCISE · FICTIONAL STORM

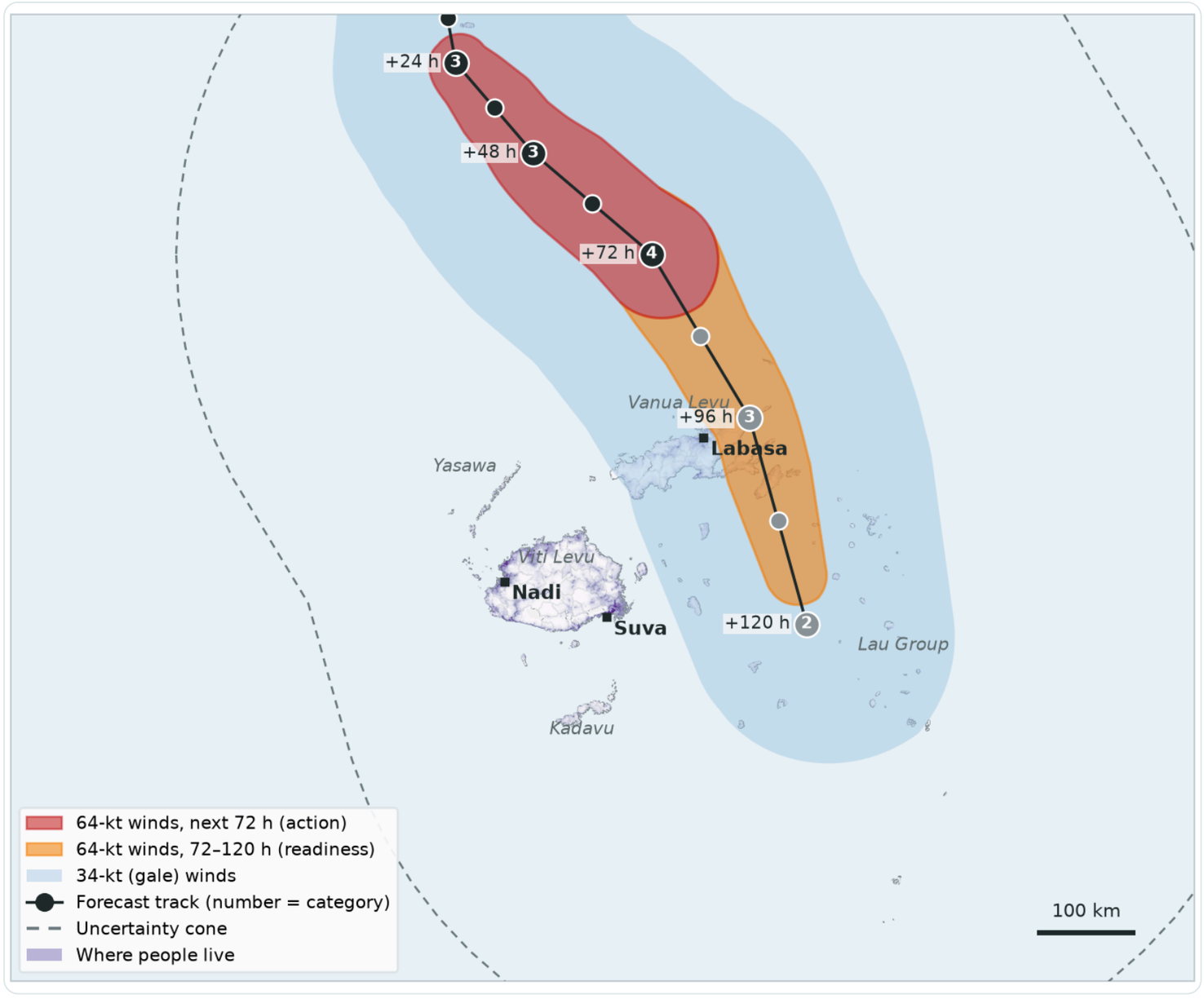
CYCLONE BRAVO · FORECAST 1 OF 5

Day 1, 00:00

Cyclone Bravo, north of Fiji, is forecast to strengthen to **Category 4** and pass over Vanua Levu in about four days. **32,817 people** are in the 64-kt zone of the 120-hour forecast, all beyond 72 hours.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**32,817** people in 64-kt zone threshold 5,000	ACTIVATED
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–

Readiness trigger activated. An automated email goes to the trigger distribution list. CERF sends approval letters to agencies and readiness activities start.



EXERCISE · FICTIONAL STORM

CYCLONE BRAVO · DAY 1, 00:00

The readiness trigger email

As soon as the forecast is checked, the monitoring system sends an email like this automatically to the trigger distribution list (framework Annex 4).

Mock-up for the exercise, based on the live email template.

Readiness trigger activated. An automated email goes to the trigger distribution list. CERF sends approval letters to agencies and readiness activities start.

[EXERCISE] Anticipatory action Fiji: Cyclone Bravo readiness trigger ACTIVATED

This is an automated message produced by the OCHA Centre for Humanitarian Data.

Dear United Nations Resident Coordinator,
Dear National Disaster Risk Management Office,
Dear Line Ministries,
Dear Colleagues,

The **readiness trigger** of the National Anticipatory Action Framework for Tropical Cyclones in Fiji **has been reached** in line with the 72-hour forecast for cyclone Bravo produced at Day 1, 00:00 (Fiji time) by the Fiji Meteorological Service, operators of Regional Specialized Meteorological Centre (RSMC) Nadi.

All **readiness** activities in line with the framework document should now commence. CERF funding to UN agencies is being released. OCHA may convene a meeting of the participating partners.

Best wishes and good luck,

OCHA Centre for Humanitarian Data

Contact

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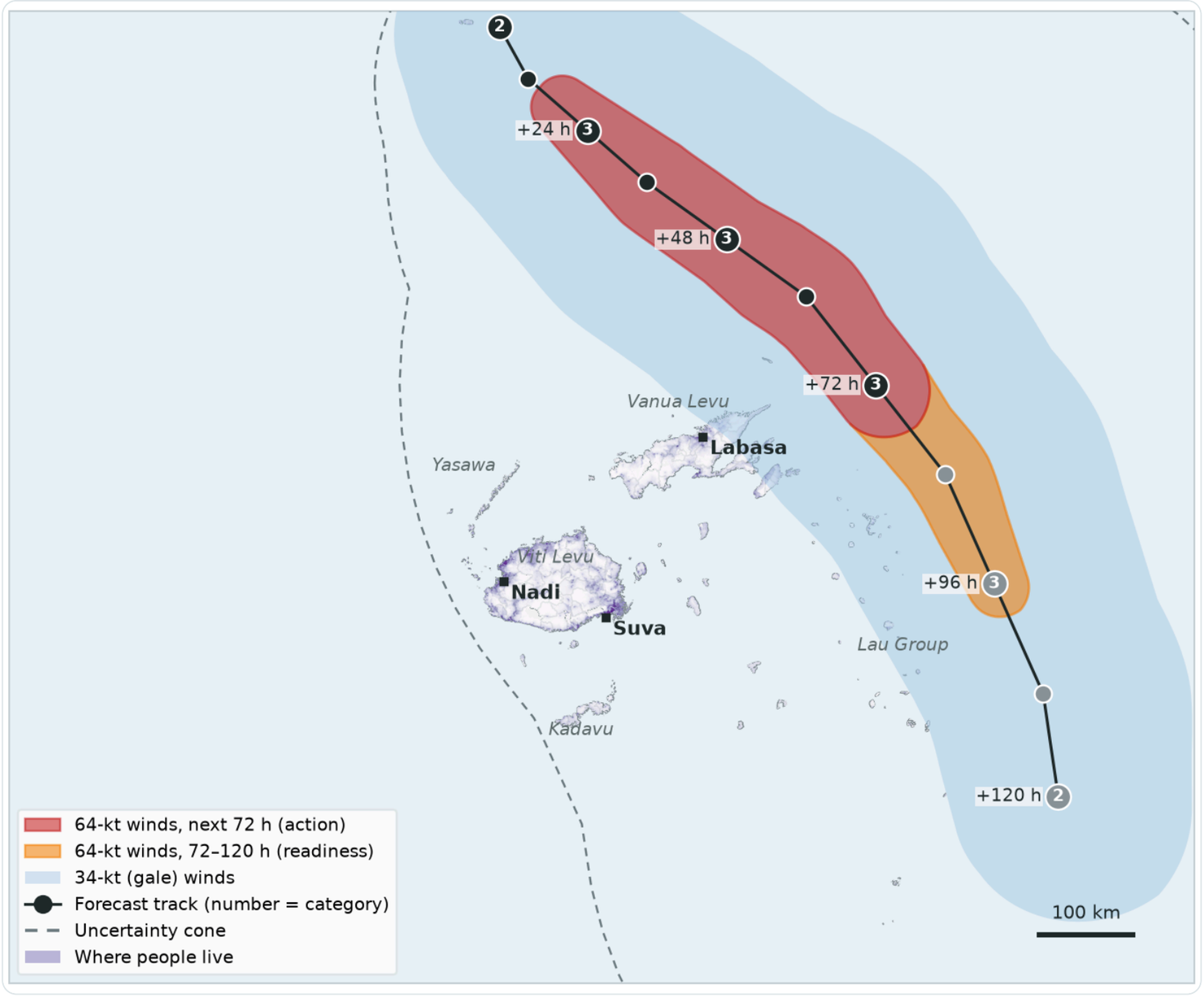
EXERCISE · FICTIONAL STORM

CYCLONE BRAVO · FORECAST 2 OF 5

Day 1, 12:00

The forecast shifts east: hurricane-force winds now pass about **20 km** from land, so nobody is in the 64-kt zone. Readiness stays activated.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	✓ Activated Day 1, 00:00
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



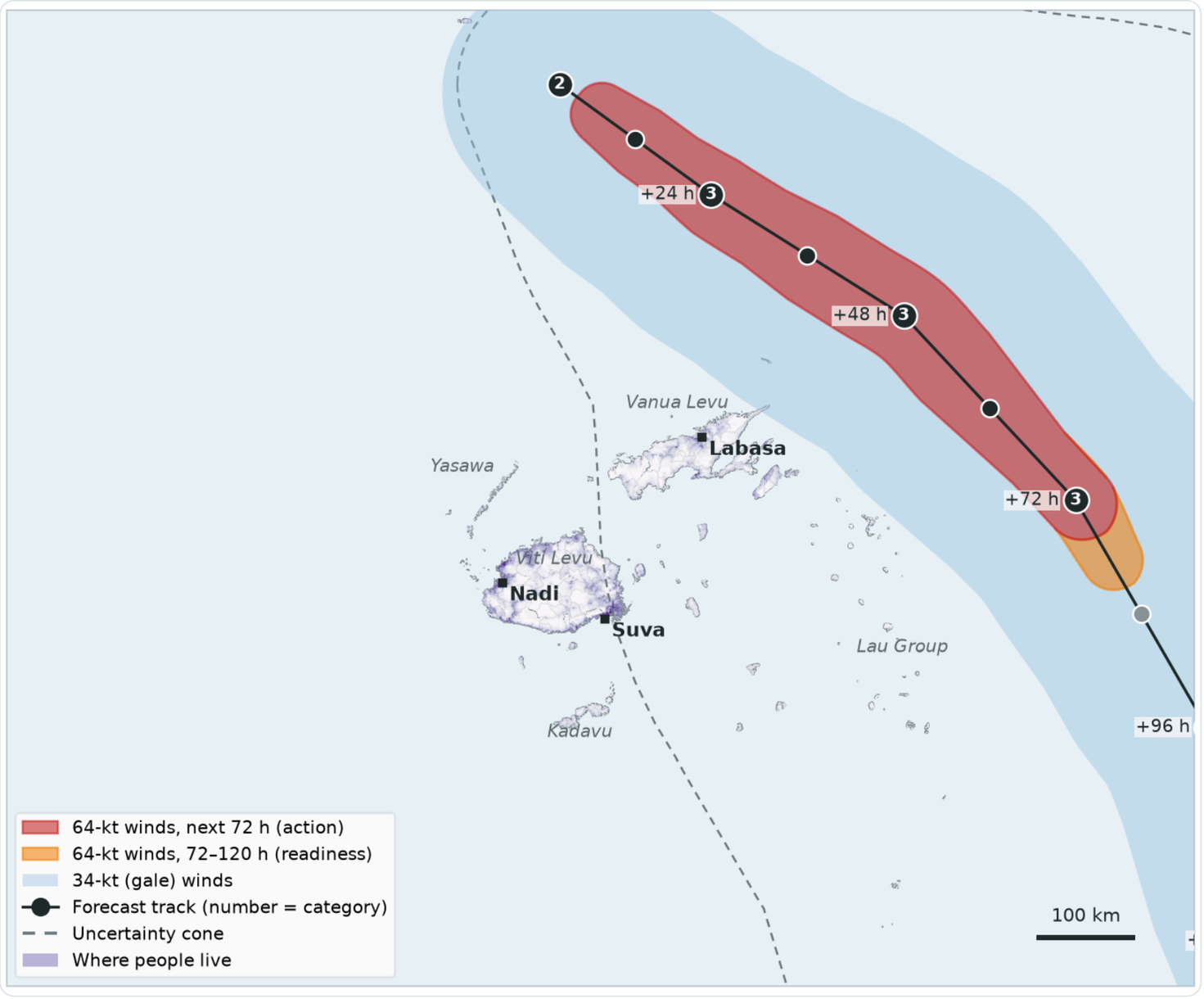
EXERCISE · FICTIONAL STORM

CYCLONE BRAVO · FORECAST 3 OF 5

Day 2, 00:00

Bravo is now forecast to curve south-east, away from Fiji. The 64-kt winds stay **65 km** offshore.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	✓ Activated Day 1, 00:00
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



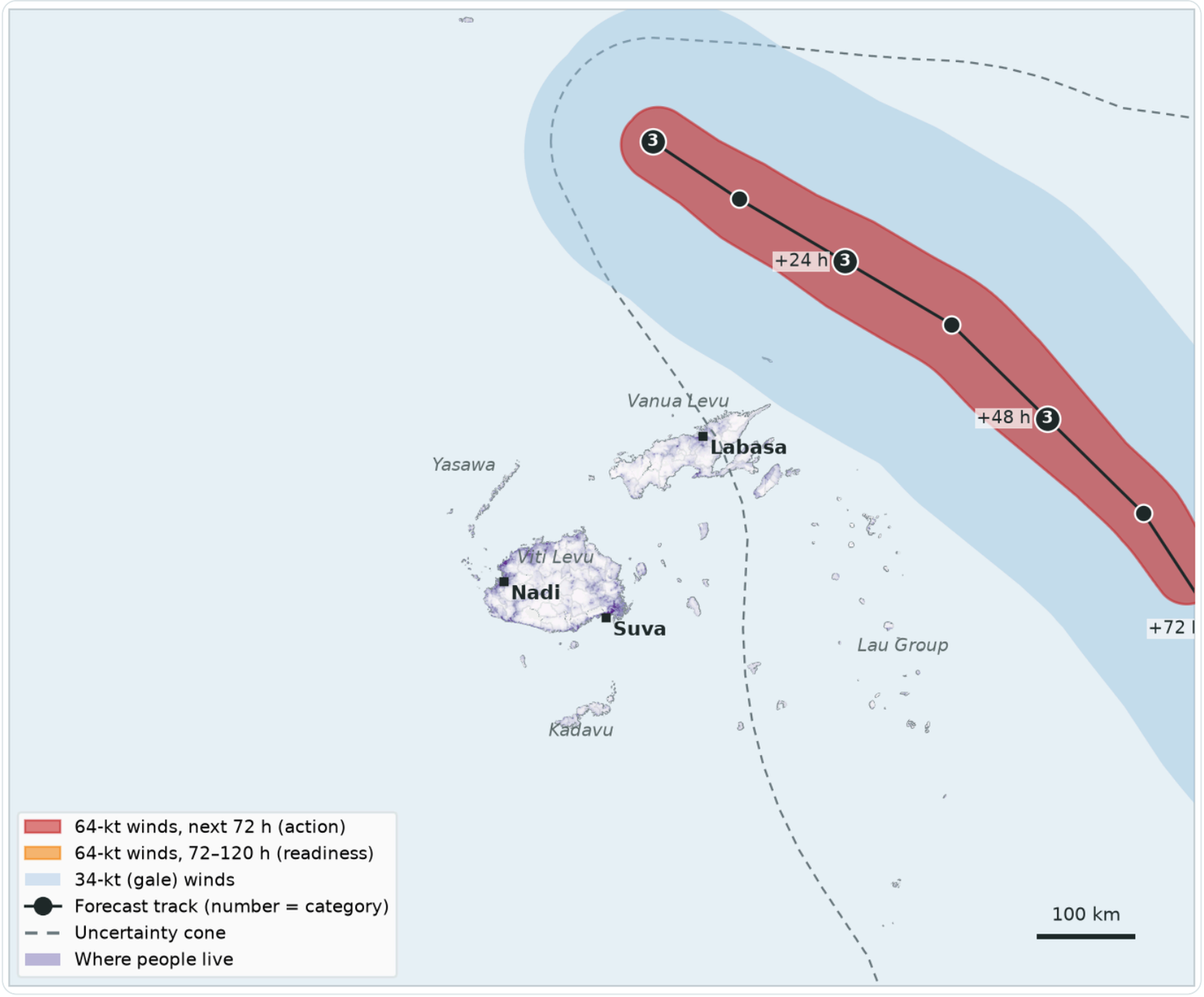
EXERCISE · FICTIONAL STORM

CYCLONE BRAVO · FORECAST 4 OF 5

Day 2, 12:00

Further east again: the closest hurricane-force winds are **85 km** from land. The action threshold is not reached.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	✓ Activated Day 1, 00:00
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



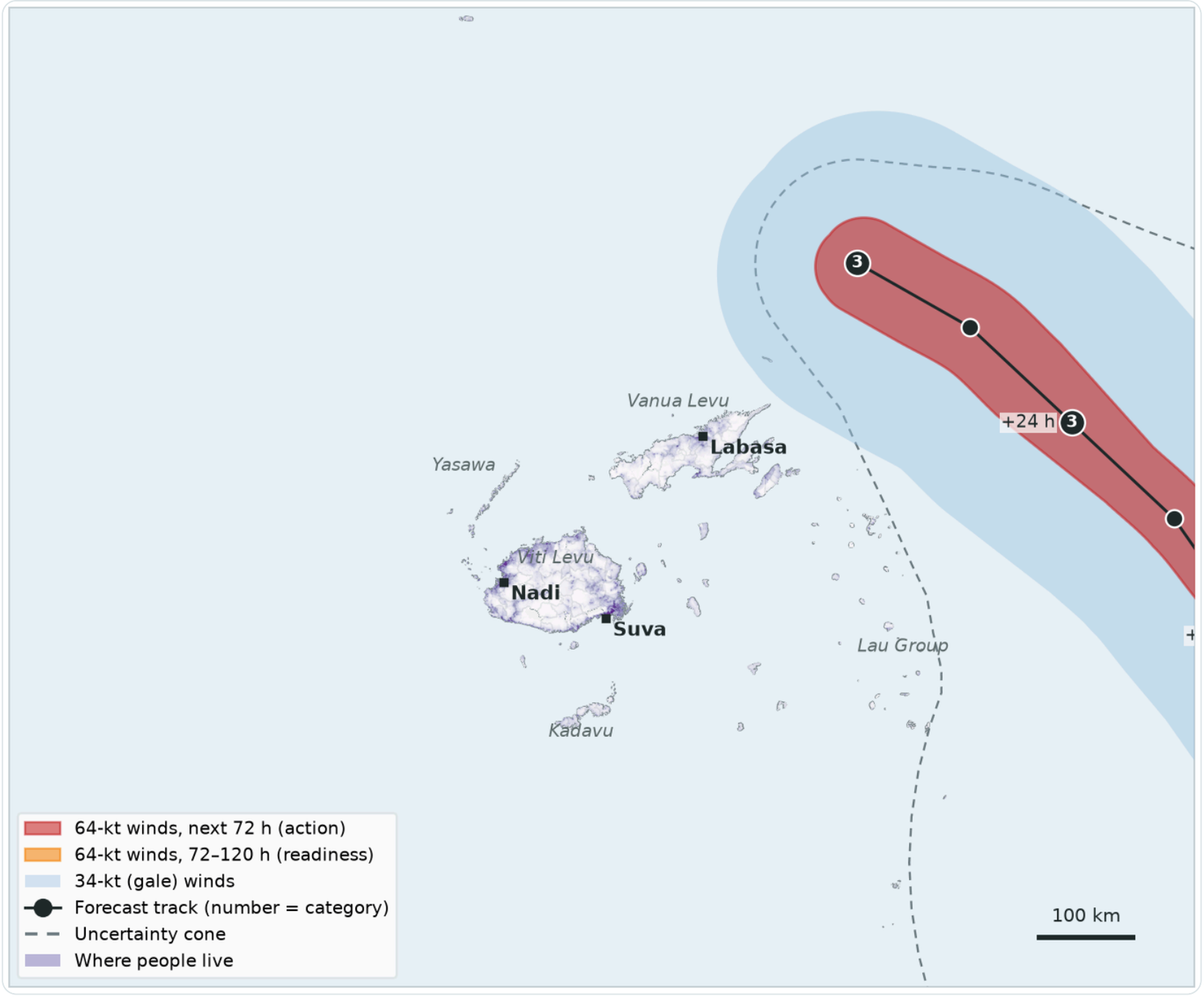
EXERCISE · FICTIONAL STORM

CYCLONE BRAVO · FORECAST 5 OF 5

Day 3, 12:00

Bravo passes east of the Lau Group, its centre 140 km from land at the closest. Its hurricane-force winds stay 90 km offshore.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	✓ Activated Day 1, 00:00
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



EXERCISE · FICTIONAL STORM

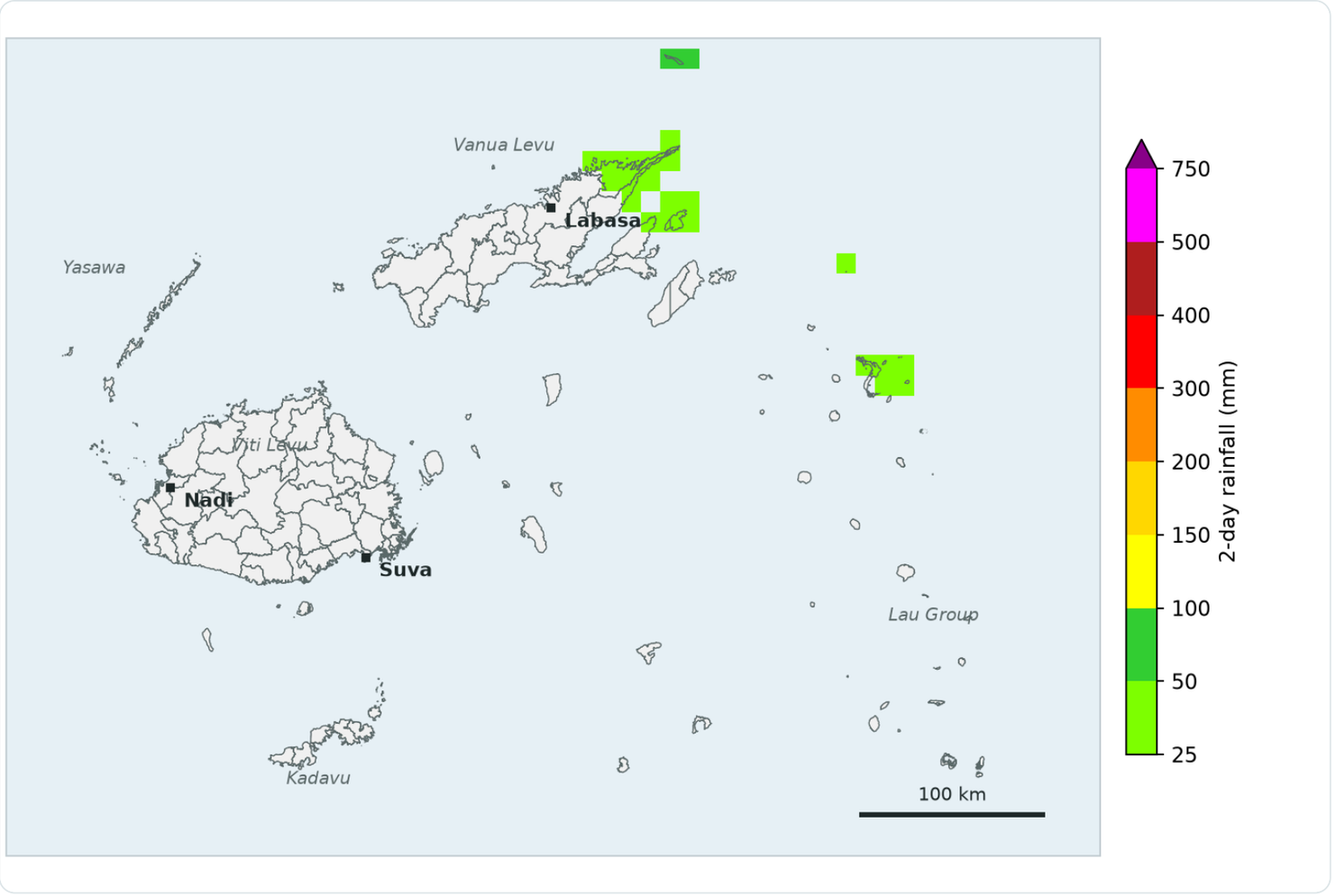
CYCLONE BRAVO · RAINFALL CHECK

Day 5, 12:00

Satellite rainfall for Days 3 and 4, while Bravo was within 250 km of Fiji: **5 mm** averaged over the whole country — far below 190 mm. Nothing more activates for this storm.

TRIGGER	THIS RAINFALL CHECK	STATUS
Readiness 120-hour forecast	—	✓ Activated Day 1, 00:00
Action 72-hour forecast	—	Not reached
Observational 2-day rainfall	**5 mm** country average threshold 190 mm	Not reached

Storm centre within 250 km of Fiji during these days (±1 day): ✓ (closest 115 km). Rainfall here is invented for the exercise.



EXERCISE · FICTIONAL STORM

CYCLONE BRAVO · RECAP

Readiness, then nothing

WHEN	WHAT CAME IN	RESULT
Day 1, 00:00	Forecast 1: 32,817 people in 64-kt zone (120 h), 0 (72 h)	READINESS ACTIVATED
Day 1, 12:00	Forecast 2: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 2, 00:00	Forecast 3: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 2, 12:00	Forecast 4: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 3, 12:00	Forecast 5: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 5, 12:00	Rainfall, Days 3 and 4: 5 mm country average	below 190 mm

Readiness activities went ahead — CERF disburses on a no-regrets basis. Action was never reached, so the action share of the CERF funds is not used and no DREF transfer is made.

EXERCISE · FICTIONAL STORM

SCENARIO 3 OF 3

Cyclone Charlie

Observational trigger only

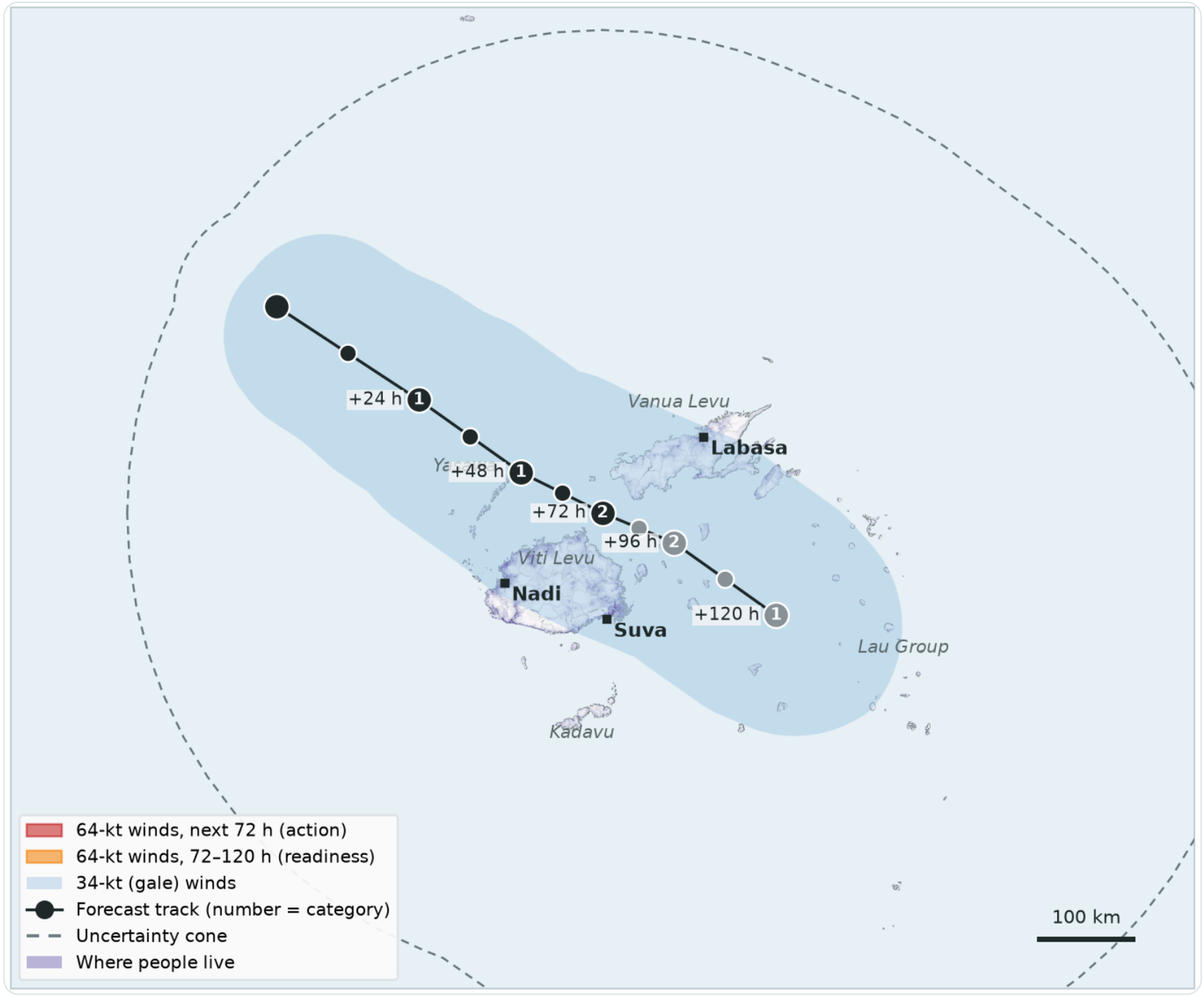
EXERCISE · FICTIONAL STORM

CYCLONE CHARLIE · FORECAST 1 OF 4

Day 1, 00:00

Cyclone Charlie, west of Fiji, is forecast to move slowly across Viti Levu — but only as a **Category 2**. No hurricane-force winds are forecast, so nobody is in the 64-kt zone.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



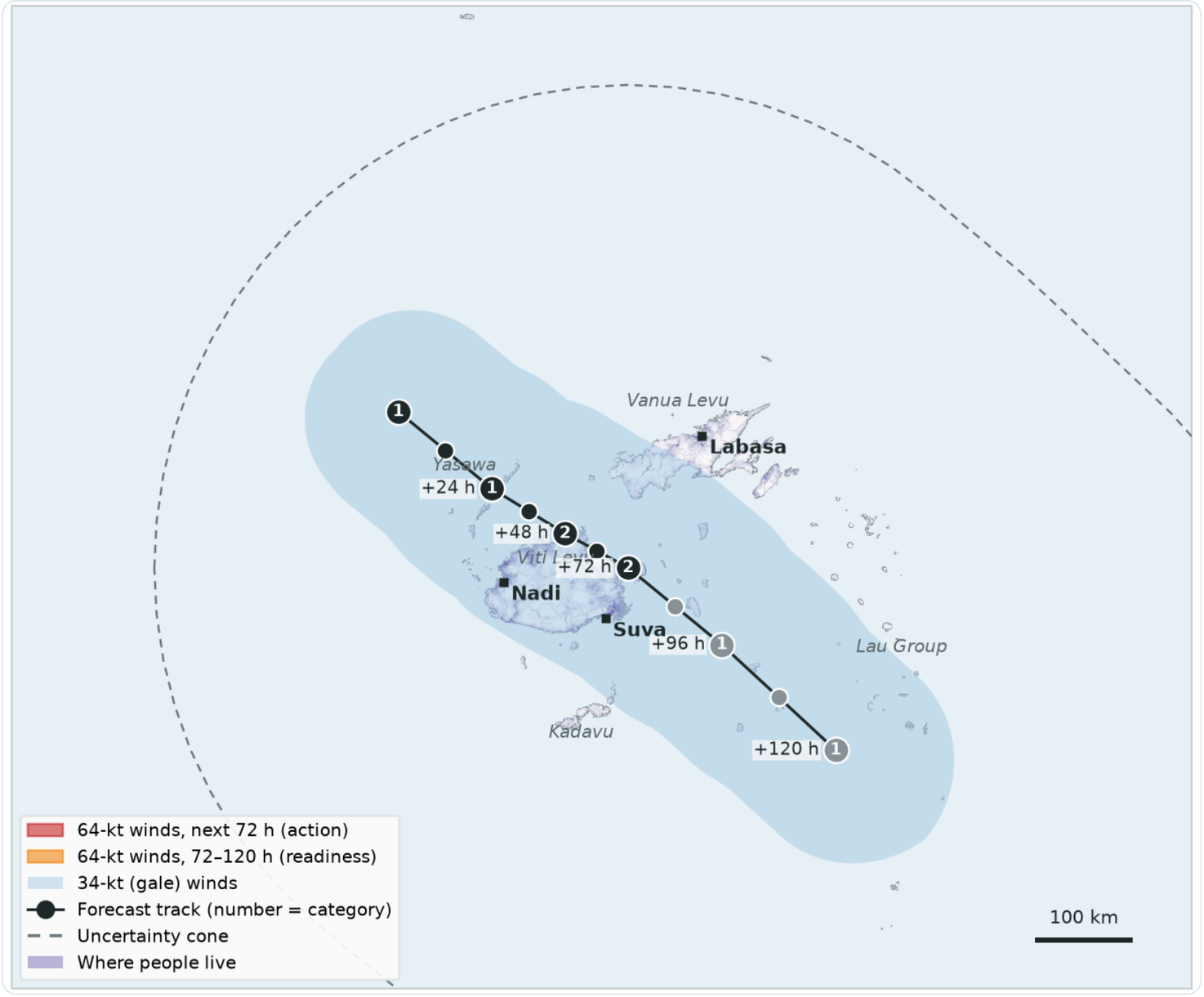
EXERCISE · FICTIONAL STORM

CYCLONE CHARLIE · FORECAST 2 OF 4

Day 2, 00:00

Charlie is slowing down. Gale-force winds are forecast over most of Viti Levu (719,509 people in the 34-kt zone) for the next two to three days — but still no 64-kt winds.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	—



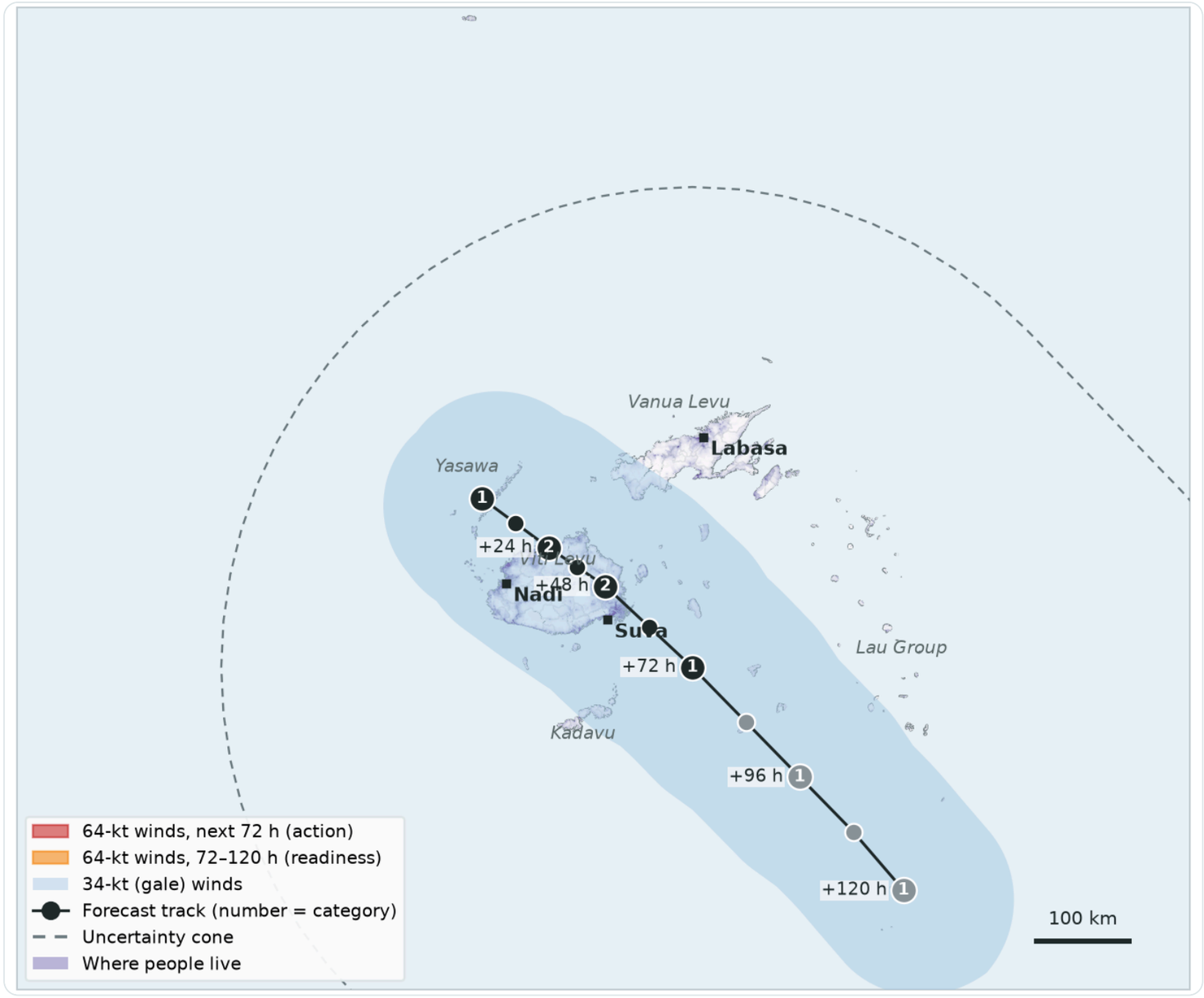
EXERCISE · FICTIONAL STORM

CYCLONE CHARLIE · FORECAST 3 OF 4

Day 3, 00:00

Charlie is almost stationary over western Viti Levu, with very heavy rain. The forecast triggers only look at 64-kt winds, so they do not activate.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



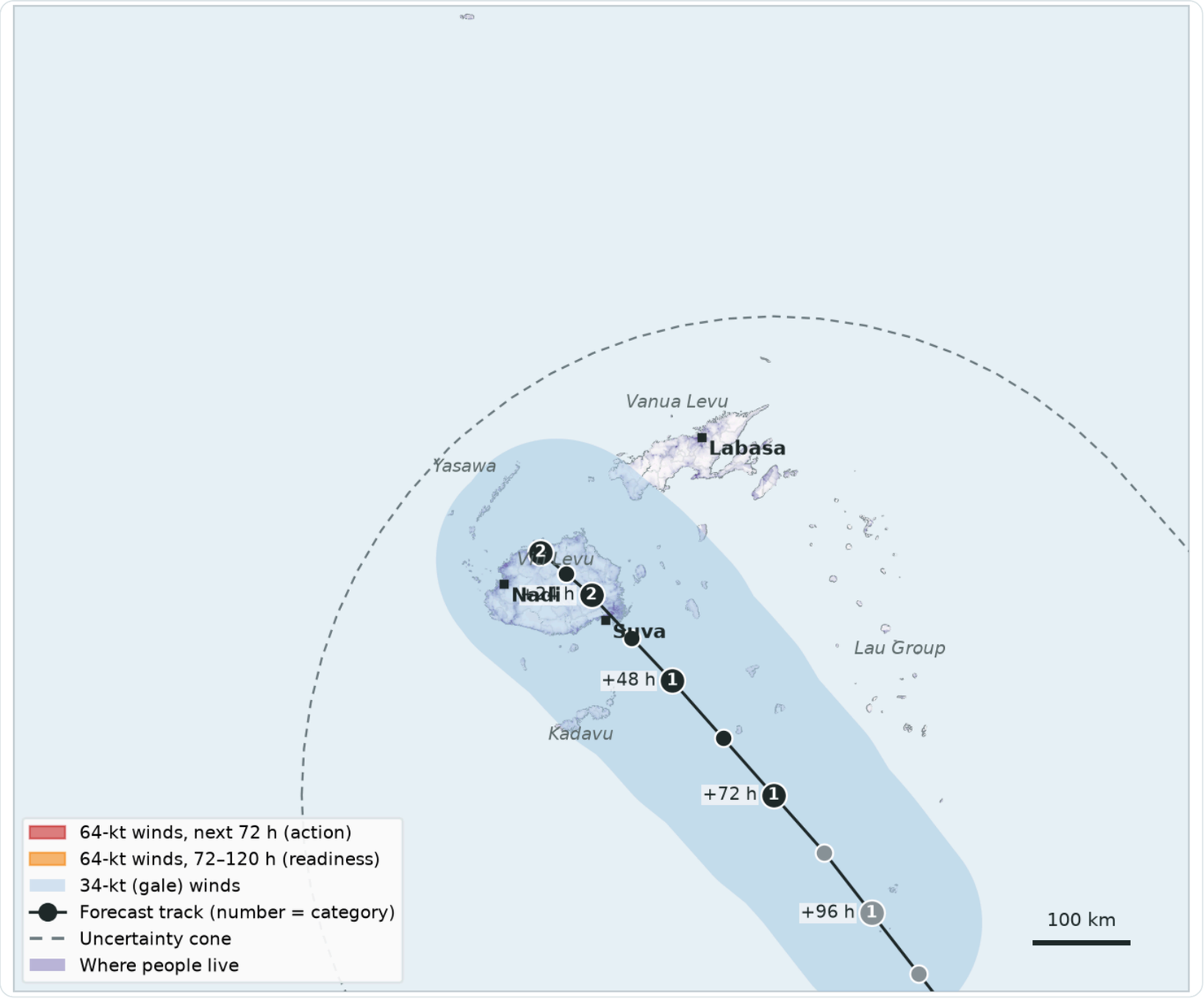
EXERCISE · FICTIONAL STORM

CYCLONE CHARLIE · FORECAST 4 OF 4

Day 4, 00:00

Still Category 2, still no 64-kt winds forecast. For this storm, it is the rainfall that matters.

TRIGGER	THIS FORECAST	STATUS
Readiness 120-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Action 72-hour forecast	**0** people in 64-kt zone threshold 5,000	Not reached
Observational 2-day rainfall	IMERG satellite, checked daily	–



EXERCISE · FICTIONAL STORM

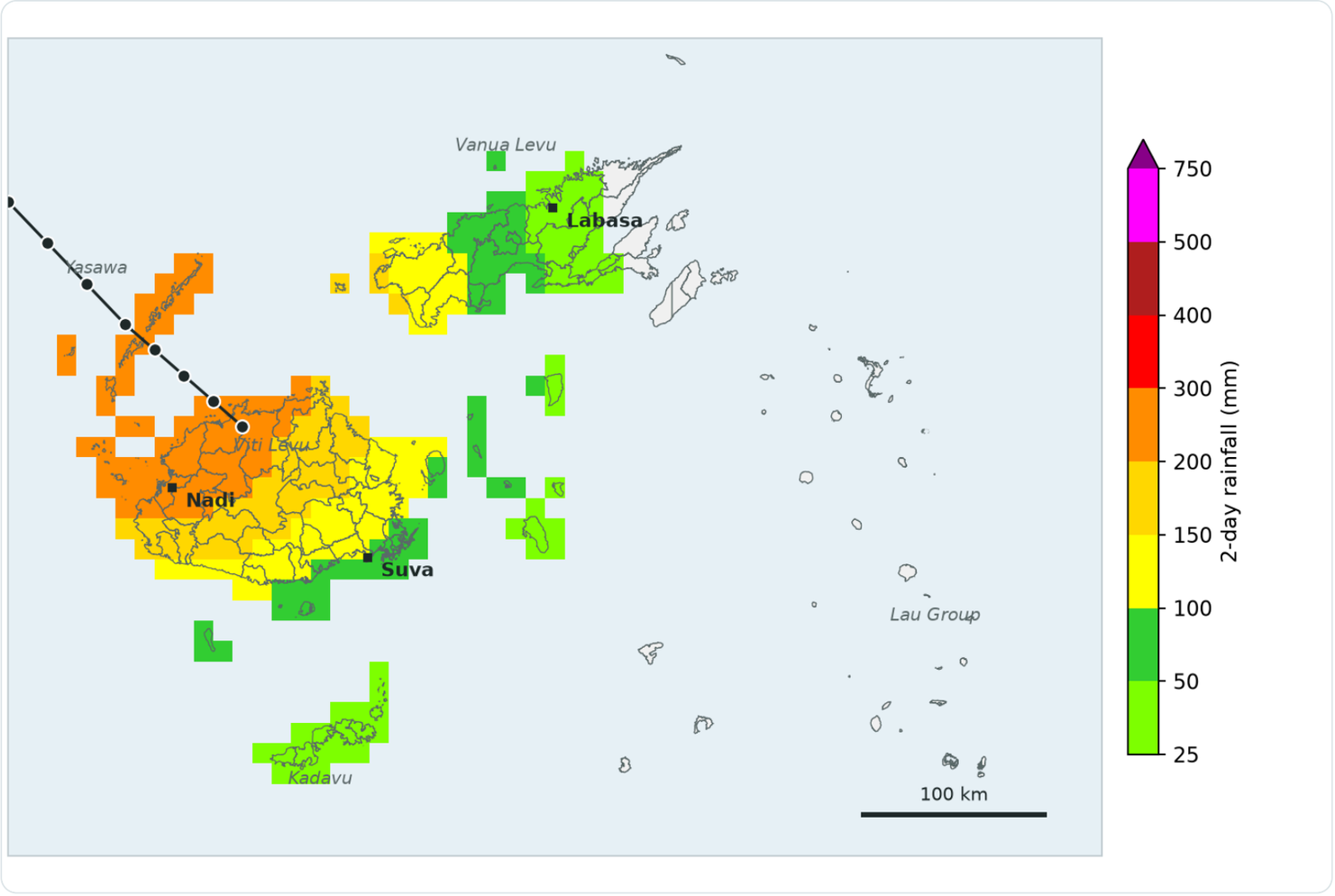
CYCLONE CHARLIE · RAINFALL CHECK

Day 4, 12:00

Rainfall check covering Days 2 and 3: **125 mm** averaged over the whole country. Very heavy in places (up to 280 mm), but the country average is below 190 mm.

TRIGGER	THIS RAINFALL CHECK	STATUS
Readiness 120-hour forecast	—	Not reached
Action 72-hour forecast	—	Not reached
Observational 2-day rainfall	**125 mm** country average threshold 190 mm	Not reached

Storm centre within 250 km of Fiji during these days (±1 day): ✓ (closest 0 km). Rainfall here is invented for the exercise.



EXERCISE · FICTIONAL STORM

CYCLONE CHARLIE · RAINFALL CHECK

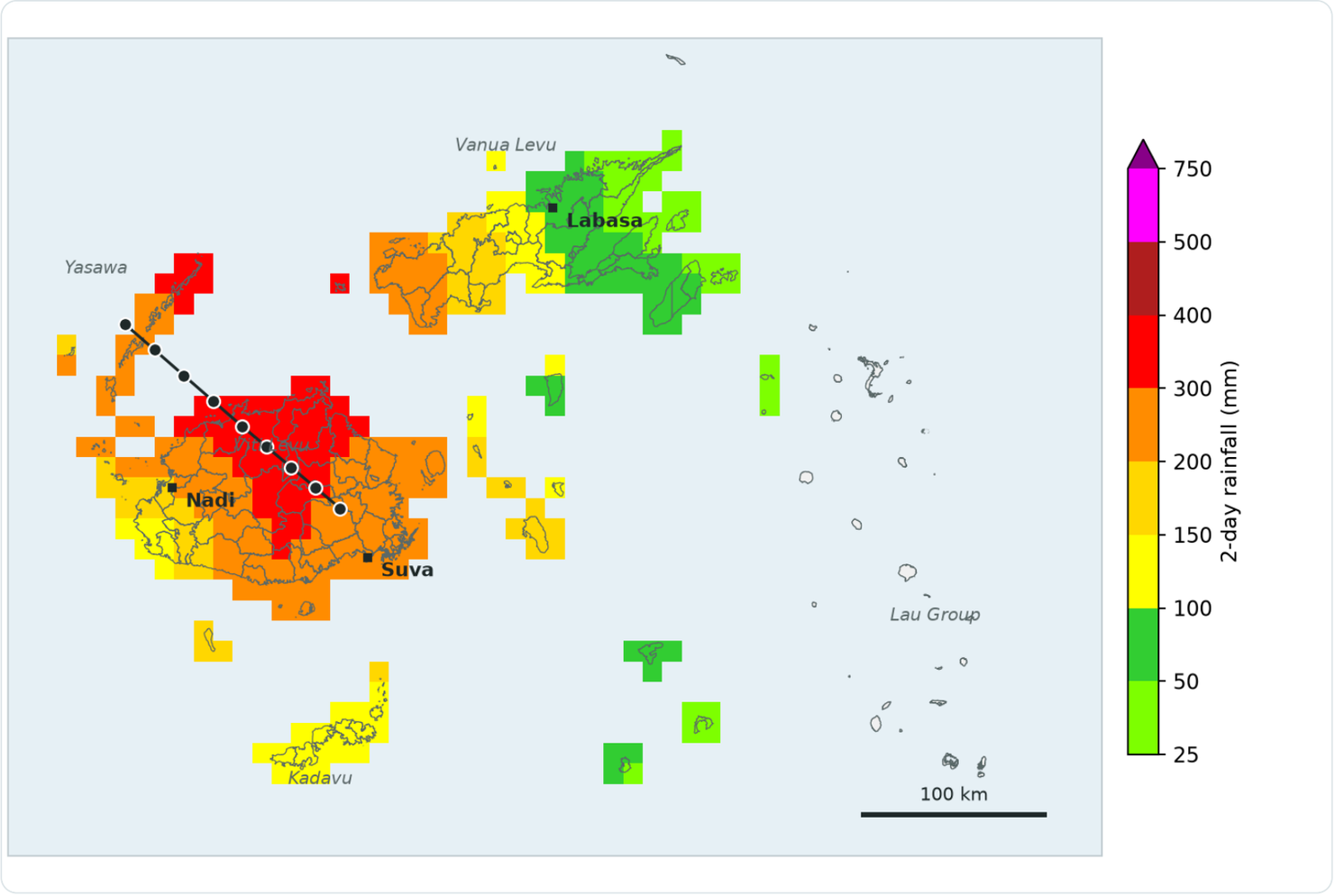
Day 5, 12:00

Satellite rainfall for Days 3 and 4, with Charlie's centre over Viti Levu: **210 mm** averaged over the whole country (up to 380 mm locally). That is above 190 mm.

TRIGGER	THIS RAINFALL CHECK	STATUS
Readiness 120-hour forecast	—	Not reached
Action 72-hour forecast	—	Not reached
Observational 2-day rainfall	**210 mm** country average threshold 190 mm	ACTIVATED

Storm centre within 250 km of Fiji during these days (±1 day): ✓ (closest 0 km). Rainfall here is invented for the exercise.

Observational trigger activated. An automated email goes to the trigger distribution list. It is treated like the action trigger: all anticipatory actions start.



EXERCISE · FICTIONAL STORM

CYCLONE CHARLIE · DAY 5, 12:00

The observational trigger email

At the daily rainfall check, the monitoring system sends an email like this automatically to the trigger distribution list (framework Annex 4).

Mock-up for the exercise.

> **Observational trigger activated.** An automated email goes to the trigger distribution list. It is treated like the action trigger: all anticipatory actions start.

[EXERCISE] Anticipatory action Fiji: Cyclone Charlie observational trigger ACTIVATED

This is an automated message produced by the OCHA Centre for Humanitarian Data.

Dear United Nations Resident Coordinator,
Dear National Disaster Risk Management Office,
Dear Line Ministries,
Dear Colleagues,

The **observational trigger** of the National Anticipatory Action Framework for Tropical Cyclones in Fiji **has been reached**. NASA IMERG satellite data show an average of **210 mm** of rainfall over the whole country during Days 3 and 4, while cyclone Charlie was within 250 km of Fiji. The threshold is 190 mm.

All activities in line with the framework document should now commence. OCHA may convene a meeting of the participating partners.

Best wishes and good luck,

OCHA Centre for Humanitarian Data

Contact

Contact the OCHA Centre for Humanitarian Data at ocha-datascience@un.org with any questions or feedback.

OCHA

OCHA Centre for Humanitarian Data

EXERCISE · FICTIONAL STORM

CYCLONE CHARLIE · RECAP

Observational trigger only

WHEN	WHAT CAME IN	RESULT
Day 1, 00:00	Forecast 1: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 2, 00:00	Forecast 2: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 3, 00:00	Forecast 3: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 4, 00:00	Forecast 4: 0 people in 64-kt zone (120 h), 0 (72 h)	no new activation
Day 4, 12:00	Rainfall, Days 2 and 3: 125 mm country average	below 190 mm
Day 5, 12:00	Rainfall, Days 3 and 4: 210 mm country average	OBSERVATIONAL ACTIVATED

No forecast trigger activated: Charlie never had hurricane-force winds. The observational trigger is the safety net — it activates **after** the rain has fallen, so there is no lead time, and it is treated like the action trigger.

SUMMARY

The three scenarios side by side

STORM	READINESS	ACTION	OBSERVATIONAL	EMAILS SENT
Cyclone Alpha Readiness, then action	Day 1, 12:00	Day 2, 12:00	—	readiness, action
Cyclone Bravo Readiness, then nothing	Day 1, 00:00	—	—	readiness
Cyclone Charlie Observational trigger only	—	—	Day 5, 12:00	observational

The forecast files used here are kept in the repository (`slides/simex_injects/`) and can be fed to the live monitoring system in test mode for a hands-on exercise.