SEASONAL FARMING ADVISORY December 2024

Eastern Highlands.

Alerts & Warnings.

Drought Alerts or Warnings are issued when acute water shortages are likely to occur.

<u>Figure 1</u> highlights areas considered to be suffering from a prolonged rainfall deficiency (drought watch), serious (drought alert) or severe rainfall deficiencies (drought critical). The terms drought watch, drought alert and drought critical are defined by:

Drought watch - rainfall lies between the bottom 30th and 10th percentiles for the period in question.

Drought alert - rainfall lies above the lowest five percent of recorded rainfall but below the lowest ten percent for the period in question

Drought critical- rainfall is among the lowest five percent for the period in question.



Figure 1: The drought indication for **a 6-month period**. September 2024.

There are no major rainfall deficiencies in Eastern Highlands and almost all parts of the country.

Rainfall Monitoring.

It is important to understand how much rain has fallen up until the point at which the forecast is made. The cumulative rainfall over the previous four months provides an important insight into the level of soil moisture available for crops. When 100mm to 500mm less rainfall has fallen than the four-month average, soil moisture levels are likely to be lower than normal. A forecast of dry conditions, coupled with lower-thannormal soil moisture levels will mean that farmers will have to consider management practices that conserve moisture.



Figure 2: The cumulative rainfall map for the four-month period ending in November 2024.

Eastern Highlands Province in the last 4 months' period, ending November;

Remote sensing data suggest possible Average conditions received over most areas. Goroka, Daulo and Upper Benna, possibly receiving less rainfall than normal. While Lufa possibly receiving more rainfall than normal over the last 4 months.

Historical Summary.

For EHP the 3-month (Dec – Jan - Feb) Average Expected Rainfall is around 450mm – 600mm.



Figure 3. Average 3-month rainfall over A) Goroka and B) Aiyura. For the season December - January and February

Historical data that is being collected from rainfall observations stations in Eastern Highlands, Goroka and Aiyura are show in the figure3 above. For the **3-month average** rainfall of the season November-December-January, the statistics are as follows;

- o A. Goroka Average rainfall is between 470mm 570mm.
- o B. Aiyura Average rainfall between 550mm 640mm.



Figure 4. Seasonal (3 Month) outlook. A). December-January2025-February2025, and B). January-February-March. A consolidated (the combination of these 3 months) forecast integrates individual month's forecast to help understand the broader seasonal trend or transition.

The wet season is generally expected to be wetter than normal favouring the Southern Region. The New Guinea Island Region likely to experience below average rainfall, Momase Region around Average rainfall, while the Highlands Region; A likely Average rainfall however for the areas near the border to Southern Region may expect above average rainfall.

Seasonal Outlook.

The 3-month consolidated forecast for December to February 2025, Figure 4 A., showing probabilities of wetter than normal conditions over the southern part of the main land while the northern half showing probabilities of drier than normal conditions. Forecasts are similar for January – March 2025, Figure 4. B, however the models confidence reduces over most parts of the country.

Eastern Highlands Province: The 3-month consolidated forecast over EHP, December – January -February provides Less confidence over the DJF season. January – February – March season, forecasts with limited confidence are indicating Below average rainfall (drier than usual) over Eastern Highlands.



Figure 5. Rainfall Probabilities forecast for the upcoming 5 months. From the 4th month onwards forecast skill begins to drop.

	A: Okapa				
Month	December	January	February	March	April
Category	Above Normal	Near Normal	Below Normal	Below Normal	Below Normal
Confidence	High Confidence	Less Confidence	Limited Confidence	Some Confidence	Some Confidence

	B: Henganofi				
Month	December	January	February	March	April
Category	Above Normal	Near Normal	Below Normal	Below Normal	Below Normal
Confidence	Some Confidence	Less Confidence	Some Confidence	Some Confidence	Limited Confidence

	C: Unggai Bena				
Month	December	January	February	March	April
Category	Above Normal	Near Normal	Below Normal	Below Normal	Below Normal
Confidence	Some Confidence	Some Confidence	Some Confidence	Some Confidence	Limited Confidence

	D: Daulo				
Month	December	January	February	March	April
Category	Above Normal	Near Normal	Below Normal	Below Normal	Below Normal
Confidence	Some Confidence	Less Confidence	Some Confidence	Some Confidence	Limited Confidence

	E: Lufa				
Month	December	January	February	March	April
Category	Above Normal	Near Normal	Below Normal	Below Normal	Below Normal
Confidence	High Confidence	Less Confidence	Limited Confidence	Some Confidence	Some Confidence

	F: Goroka				
Month	December	January	February	March	April
Category	Above Normal	Near Normal	Below Normal	Below Normal	Below Normal
Confidence	Some Confidence	Less Confidence	Some Confidence	Some Confidence	Limited Confidence

	G: Kainantu				
Month	December	January	February	March	April
Category	Above Normal	Near Normal	Below Normal	Below Normal	Below Normal
Confidence	Some Confidence	Less Confidence	Some Confidence	Some Confidence	Limited Confidence

	H: Obura Wonenara				
Month	December	January	February	March	April
Category	Above Normal	Above Normal	Below Normal	Near Normal	Below Normal
Confidence	High Confidence	Less Confidence	Less Confidence	Limited Confidence	Some Confidence

Confidence Level Scale:

Less Confidence	Limited Confidence	Some Confidence	High Confidence	
Less than 40% chance of occuring	Between 40% and 50% chance of occuring	Between 50 - 70% chance of occuring	greater than 70 % chance of occuring	

Summary:

The wet season giving **Some confidence** for higher than normal rainfall for December. District like; Okapa, Lufa and Obura Wonenara, forecasts reaching **High Confidence** level of Above Average rainfall over the month of December.

December is the only month showing potential of receiving Above Average rainfall. January 2025 and onwards, the model is forecasting Average to Below Average rainfall. Average rainfall can be expected for January. For February to April of 2025, an Average to Below Average rainfall can be expected.



Monthly Scenario Probabilities.

Exceedance probability forecasts offer insights into the likelihood of rainfall surpassing specific thresholds, which can complement three-category (Above normal, Near Normal and Below Normal) seasonal forecasts by providing an added layer of context. For agriculture, this approach may guide adjustments in irrigation and crop planning, especially when seasonal forecasts suggest "Below Average" rainfall but there's still a moderate chance of meeting crucial moisture levels. These forecasts could aid in flood control and drought preparedness by signalling potential for extreme rainfall or scarcity. Together, they offer a perspective, supporting more adaptable responses throughout the Wet and Dry seasons.



Figure 6.Chances of exceeding a certian amount of rainfall in millimeters. Climate Model with a confidence of 75%

Summary:

Figure 6 showing the forecasted exceedance of rainfall for December, January and February 2025. Model estimates rainfall to exceed 200mm is almost certain for Eastern Highlands for December. January and February, possibility of exceeding 150mm of rainfall.

Overall Summary.

Eastern Highlands 3-month average rainfall on record is around 450mm – 600mm for December, January and February (NDJ). The Seasonal Forecast suggests Average rainfall for the DJF season.

For the monthly forecast, December is predicted to receive Above average rainfall, the model has Some Confidence on this. December showing potential of receiving Above Average rainfall which could exceed 200mm. January at this time is forecasted to be Near Average. Rainfall for January could also exceed around 150mm.