

# Global Water Monitor & Forecast Watch List

March 15, 2022

---

*For more information, contact:*

*Thomas M. Parris, President, 802-864-2999, [parris@isciences.com](mailto:parris@isciences.com)*

## Table of Contents

Introduction .....	2
Worldwide Water Watch List.....	4
Watch List: Regional Synopsis.....	4
Watch List: Regional Details.....	6
United States.....	6
Canada .....	8
Mexico, Central America, and the Caribbean .....	10
South America.....	12
Europe.....	15
Africa .....	17
Middle East .....	19
Central Asia and Russia .....	21
South Asia .....	23
Southeast Asia and the Pacific.....	25
East Asia.....	27
Australia & New Zealand.....	29

## Introduction

The ISciences Water Security Indicator Model (WSIM) monitors and forecasts water anomalies on a global basis. Each month we produce data and a report that document current conditions and provide forecasts with lead times from 1 to 9 months. WSIM has been run continuously since April 2011 and has been validated against subsequently observed data.

ISciences also provides assessments of the impacts of water anomalies on people, agriculture, and electricity generation. Detailed data and reports are available for purchase. Additional information and pricing are available upon request.

We have recently completed the latest Water Security Indicator Model (WSIM) analysis of global water anomalies using observed temperature and precipitation through February 2022 and an ensemble of forecasts issued the last week of February 2022. This edition of *Global Water Monitor & Forecast Watch List* presents a selection of regions likely to encounter significant water anomalies in the next few months. This report uses results from WSIM Version 2. Visit <https://wsim.isciences.com> for details.

All maps have half-degree resolution and depict our composite water anomaly index, which is based on WSIM estimates of soil moisture, evapotranspiration deficit, runoff, and total blue water anomalies. Shades of red indicate deficits and shades of blue indicate surpluses. Since different variables are used to estimate deficits and surpluses, it is possible for a single half-degree cell to register both a deficit and a surplus. These cases are depicted on the maps in shades of purple, with the more extreme value (deficit or surplus) used to determine the shade.

Deficits and surpluses are stated in terms of return period – a measure that characterizes the rarity of an event. For example, a return period of 10 years indicates an event that would occur, on average, once every ten years. Higher return periods indicate more extreme and, therefore, more disruptive anomalies. Return period is computed by comparison to cell-specific distributions of data from 1950 through 2009. Anomaly levels correspond to return periods: abnormal=3-5 years, moderate=5-10 years, severe=10-20 years, extreme=20-40 years, and exceptional=greater than 40 years.

Please note that the WSIM model makes use of seasonal temperature and precipitation forecasts produced by the U.S. National Oceanic and Atmospheric Administration (NOAA) Climate Forecast System Version 2 (CFSv2). These forecasts predict broad temperature and precipitation patterns, but do not effectively predict singular events such as tropical storms. Detailed outlooks and analyses of tropical storms are available from the [NOAA National Hurricane Center](#).

There are numerous regions around the world where country borders are contested. ISciences depicts country boundaries on these maps solely to provide some geographic context. The boundaries are nominal, not legal, descriptions of each entity. The use of these boundaries does not imply any judgement on the legal status of any territory, or any endorsement or acceptance of disputed boundaries on the part of ISciences or our data providers.

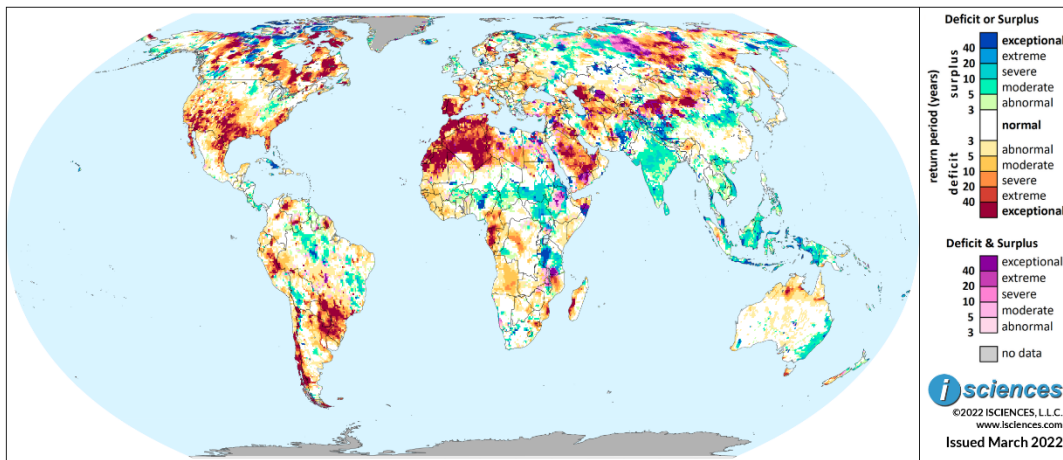
*Copyright 2022 ISCIENCES, L.L.C. Global Water Monitor & Forecast Watch List is the property of ISCIENCES, L.L.C. It is protected by U.S. copyright laws and may not be reproduced in any way without the written permission of ISCIENCES, L.L.C.*

*The user assumes the entire risk related to user's use of information in ISCIENCES, L.L.C. Global Water Monitor & Forecast: Watch List, including information derived from Water Security Indicators Model (WSIM). This information may include forecasts, projections and other predictive statements that represent ISCIENCES, L.L.C.'s assumptions and expectations in light of currently available information and using the highest professional standards. Actual results may differ from those projected. Consequently, no guarantee is presented or implied as to the accuracy of specific forecasts, projections or predictive statements contained herein. ISCIENCES, L.L.C. provides such information "as is," and disclaims any and all warranties, whether express or implied, including (without limitation) any implied warranties of merchantability or fitness for a particular purpose. In no event will ISCIENCES, L.L.C. be liable to you or to any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from any use or misuse of this data.*

## Worldwide Water Watch List

This map presents a selection of regions likely to encounter significant water anomalies during the one-year period beginning in December 2021 and running through November 2022 using 3 months of observed temperature and precipitation data and 9 months of forecast data.

ISciences Water Anomalies Forecast: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

### Watch List: Regional Synopsis

This synopsis provides highlights of regional water forecasts. More detailed analysis is available in “Watch List: Regional Details” immediately following the synopsis.

**United States:** The forecast through May indicates widespread, intense water deficits in Texas, the Southwest, and Florida, and deficits in the Central Plains, California, Gulf Coast, and South Atlantic. Surpluses are forecast on the border of Minnesota and the Dakotas, and in the Ohio River Watershed.

**Canada:** The forecast through May indicates that water deficits in Quebec will shrink somewhat, but vast areas of intense deficit will persist in Canada’s eastern half. Near-normal conditions are forecast in southern regions of the Prairie Provinces. Surpluses will increase in southern British Columbia.

**Mexico, Central America, and the Caribbean:** The forecast through May indicates the emergence of widespread, exceptional water deficits in northern Mexico and near the Pacific Coast through Jalisco. Surpluses are forecast in Central America and the Caribbean.

**South America:** The forecast through May indicates widespread water surpluses in the northern Amazon Basin, Guianas, southern and eastern Venezuela, and several regions in Colombia. Intense deficits are expected in Mato Grosso do Sul, São Paulo, and Paraná, Brazil.

**Europe:** The forecast through May indicates many areas of water deficit from the Iberian Peninsula through Ukraine and widespread surpluses in Northern Europe. Deficits will be intense in Portugal, Spain, France, Hungary, eastern Czech Republic, and Estonia.

**Africa:** The forecast through May indicates water deficits of varying intensity in many regions across the north. Surpluses are expected in central Nigeria where anomalies will be exceptional, throughout much of Tanzania, and in southeastern Sudan.

**Middle East:** The forecast through May indicates widespread water deficits on the Arabian Peninsula and deficits in southern Iraq and central and southeastern Iran. Areas with a forecast of surplus include Iran's Caspian Coast and the Kizilirmak River Basin in northern Turkey.

**Central Asia and Russia:** The forecast through May indicates widespread water surpluses in Russia from the Northern European Plain into the Yenisei River Watershed. Deficits in the Volga region will transition to surplus, and deficits in the Central Siberian Plateau will shrink.

**South Asia:** The forecast through May indicates the emergence of widespread, exceptional water deficits in western and central India and severe deficits in the Far Northeast. Areas with a forecast of surplus include southern India, Nepal, and western Bangladesh.

**Southeast Asia and the Pacific:** The forecast through May indicates that widespread, intense water surpluses will persist in Southeast Asia, but surpluses in Indonesia and Pacific regions will shrink and downgrade.

**East Asia:** The forecast through May indicates persistent, intense water surpluses from Northeast China through the North China Plain and much of the Yellow River Basin. Areas with a forecast of deficit include Shanghai to Three Gorges Dam, South Korea, and southern Japan.

**Australia & New Zealand:** The forecast through May indicates that, while shrinking and downgrading, water surpluses will remain widespread in eastern Australia from Bundaberg on Queensland's coast through the Murray-Darling Basin and coastal regions into Victoria.

## Watch List: Regional Details

### United States

The 12-month forecast ending November indicates widespread water deficits of varying intensity in many regions of the U.S. including the West, Southwest, Rockies, Central and Southern Plains, Gulf Coast, and South Atlantic. Surpluses are forecast in the Ohio River Watershed and the border region shared by Minnesota and the Dakotas.

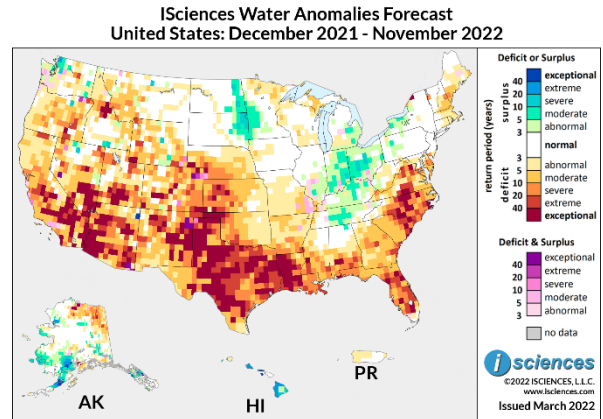
Extreme to exceptional deficits are expected throughout much of Texas and in the Oklahoma Panhandle, Louisiana, and large pockets of the Southwest and SoCal. The Central Plains can expect deficits of varying intensity as can the Rockies and Oregon. Deficits in NorCal will be mild to moderate though severe pockets are forecast near Sacramento and San Francisco. In Washington State, surpluses are expected near Puget Sound and in the Bellingham region.

On the East Coast, severe to exceptional deficits will reach from Virginia to the Congaree River in South Carolina before downgrading through Georgia and the Florida Panhandle, then becoming intense through most of Peninsular Florida. In the Northeast, generally moderate deficits are forecast from Boston to Augusta, Maine.

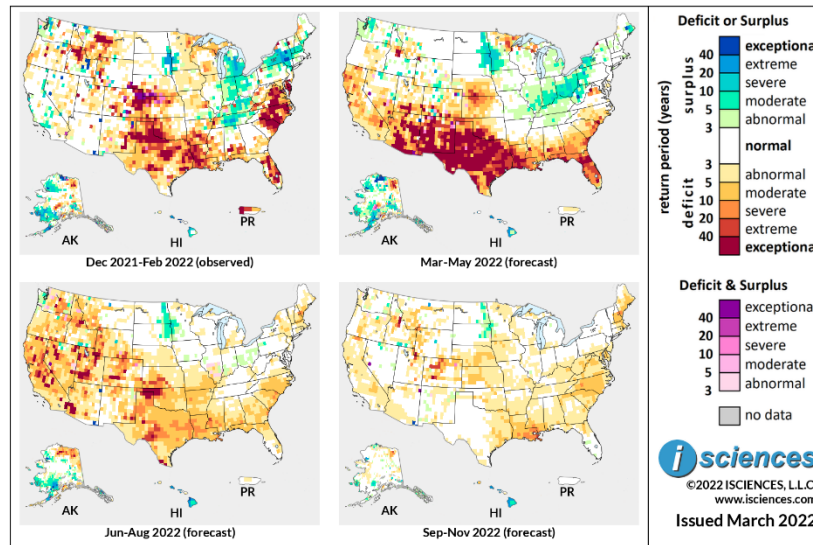
Surpluses, primarily moderate, are forecast in the Ohio River Watershed, particularly in Indiana and Ohio, and in pockets of southeastern Michigan and near Buffalo and Rochester, NY. In the Upper Midwest, moderate to severe surpluses are forecast in a column spanning the border region shared by Minnesota and the Dakotas, and some scattered pockets of moderate deficit are predicted for northern Minnesota and Michigan's Upper Peninsula.

Outside the contiguous U.S., surpluses are forecast in Hawaii. Alaska can expect deficits in the northeast and surpluses near Juneau and Nome, west of Bethel, and reaching from the Alaska Peninsula inland to the Kuskokwim River.

The 3-month maps (below) show the evolving conditions in more detail.



**ISciences Water Anomalies Forecast  
United States: December 2021 - November 2022**



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates widespread, exceptional deficits in Texas and many areas of Louisiana, Oklahoma, New Mexico, and Arizona. Nebraska and Kansas can expect moderate to extreme deficits, mixed conditions are forecast throughout the Rocky Mountain States, and moderate to severe deficits in California. In Washington State, surpluses, primarily moderate, are forecast from Seattle to the Canadian border. Deficits will remain intense in Idaho’s Salmon River Mountains but will shrink considerably in western Montana. In the Northern Plains, surpluses will increase along the shared border of Minnesota and the Dakotas, emerging in the Red River Watershed. Deficits are expected in northeastern Minnesota and pockets reaching into Michigan’s Upper Peninsula; surpluses in southern Michigan will downgrade considerably. In the Ohio River Watershed, surpluses will be moderate to severe in the north while downgrading to mild in Kentucky and Tennessee. West Virginia will transition from deficit to surplus, and surpluses will reach into western Pennsylvania and western New York. In New England, surpluses will emerge in eastern Maine as anomalies elsewhere shrink. Deficits will shrink in the South Atlantic States but increase in the Deep South, Florida, and Gulf Coast and will be particularly widespread and intense in Florida.

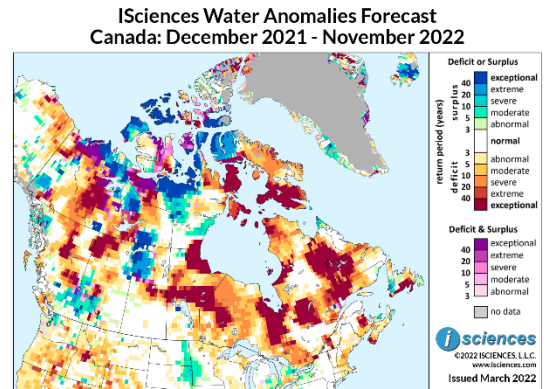
From June through August, surpluses will retreat from the Ohio River Basin and shrink and moderate from the Dakotas into Minnesota. Widespread deficits are expected in much of the West, Rockies, Central and Southern Plains, Middle and Lower Mississippi, Gulf Coast, and South Atlantic. Though deficits will be moderate overall, many intense pockets are expected in the West, Rockies, and Southern Plains, particularly in California, Utah, the Panhandles of Texas and Oklahoma, and the Hill Country of Texas. Some mild deficits are expected to emerge in New England.

The forecast for the final months – September through November – indicates deficits in New England, the Carolinas, Louisiana, Central Plains, and Rockies. Surpluses in the Dakotas will shrink.

Please note that WSIM forecast skill declines with longer lead times.

## Canada

The 12-month outlook for Canada through November indicates widespread water deficits in the eastern half of the nation. Deficits will be exceptional in southern Newfoundland, Nova Scotia's southern tip, the Miramichi River watershed in east-central New Brunswick, the Smallwood Reservoir region in Labrador, the Manicouagan Reservoir region in Quebec, a vast area near Lake Mistassini, and the lower Saint-Maurice River region as it empties into the St. Lawrence between Montreal and Quebec City.



Based on observed data through February 2022 and forecasts through November 2022

Deficits of lesser intensity are expected in much of Southern Ontario though a belt of surplus is forecast west of Toronto. Exceptional deficits are expected in a broad column along Ontario's eastern border reaching James Bay. Deficits will be widespread in Northern Ontario and will include exceptional anomalies in Kenora District.

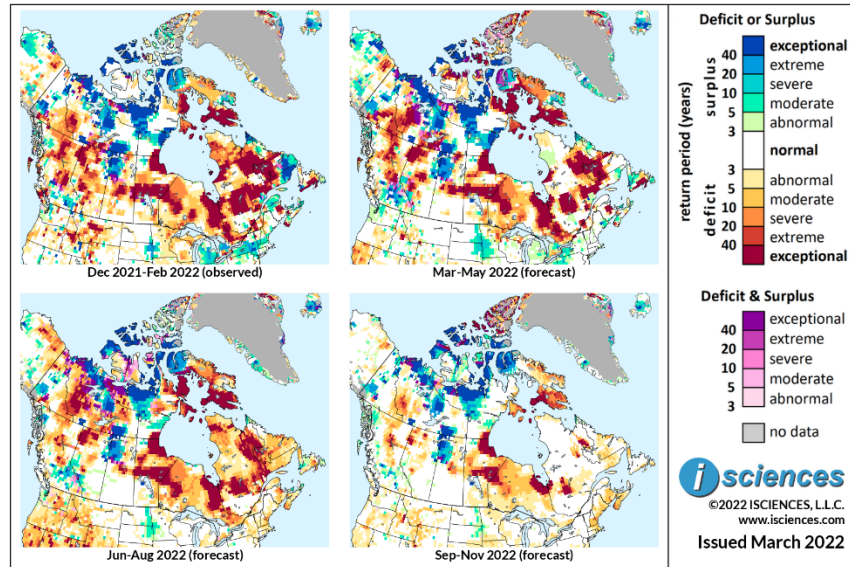
In the Prairie Provinces, nearly normal conditions are forecast across the south with deficits east of Winnipeg. Exceptional deficits will belt central Manitoba and are also forecast in the province's northeast reaching Hudson Bay. Central Saskatchewan can expect deficits, but surpluses are forecast in the northwest quadrant leading west to Fort McMurray, Alberta. Exceptional deficits are expected in northwestern Alberta, deficits of varying intensity in the Middle Athabasca River region, and surpluses north of Banff.

Surpluses are forecast in the Thompson River Watershed of southern British Columbia leading east into the Columbia Watershed. Deficits are expected at opposite ends of the province's southern region in Vancouver Island and in East Kootenay. The Upper Fraser and Nechako River Watersheds will see intense deficits as will British Columbia's central far north, from Williston Lake well into Yukon and Northwest Territories.

The 3-month maps (below) show the evolving conditions in more detail.



**ISciences Water Anomalies Forecast  
Canada: December 2021 - November 2022**



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates that, although deficits in Quebec will shrink somewhat, vast areas of intense deficit are forecast. Smaller pockets of intense deficit will persist on Newfoundland’s southern coast, in east-central New Brunswick, and the Lower St. Maurice River east of Montreal. Surpluses will retreat from the Gaspé Peninsula, emerge in northwestern Newfoundland, and persist near Toronto. Near-normal conditions are forecast in southern regions of the Prairie Provinces, deficits east of Winnipeg, Manitoba, and intense deficits in central and northern Manitoba. Intense deficits will also persist in central Saskatchewan and central and northwestern Alberta. Surpluses will persist from northwestern Saskatchewan into Alberta and will increase in the Canadian Rockies of southern Alberta. Surpluses will also increase in southern British Columbia. Deficits will retreat from Vancouver Island but persist in the Upper Fraser and Nechako River Watersheds and from Williston Lake in the far north into Yukon and Northwest Territories.

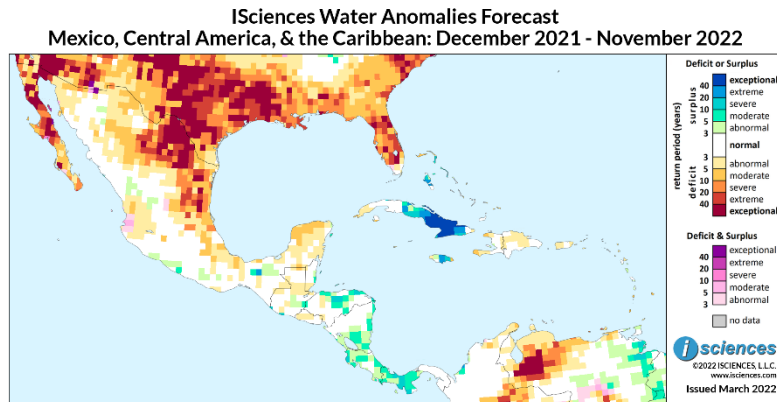
From June through August, moderate deficits will increase in eastern Canada and surpluses will nearly disappear. Deficits in southern Newfoundland, New Brunswick, and southern Nova Scotia will downgrade. Intense deficits will persist in Manitoba’s northern half but will shrink in central Saskatchewan and central Alberta. Deficits in British Columbia will downgrade, and surpluses are expected from the Cariboo Region of the south into the Rockies of southern Alberta.

The forecast for the final months – September through November – indicates that deficits will shrink considerably in Quebec and Southern Ontario. Deficits will persist in Northern Ontario, central and northeastern Manitoba, and pockets of central Saskatchewan, central and northwestern Alberta, and from central British Columbia into Northern Territories. Surpluses in the south will shrink.

Please note that WSIM forecast skill declines with longer lead times.

## Mexico, Central America, and the Caribbean

The 12-month forecast ending November indicates widespread water deficits of varying intensity in the Baja Peninsula and Mexico's north-central and northeastern states. Anomalies will be severe to exceptional in central Baja, the Colorado River Delta, and from eastern Chihuahua through Coahuila and northern Nuevo León into Tamaulipas on the Gulf of Mexico.

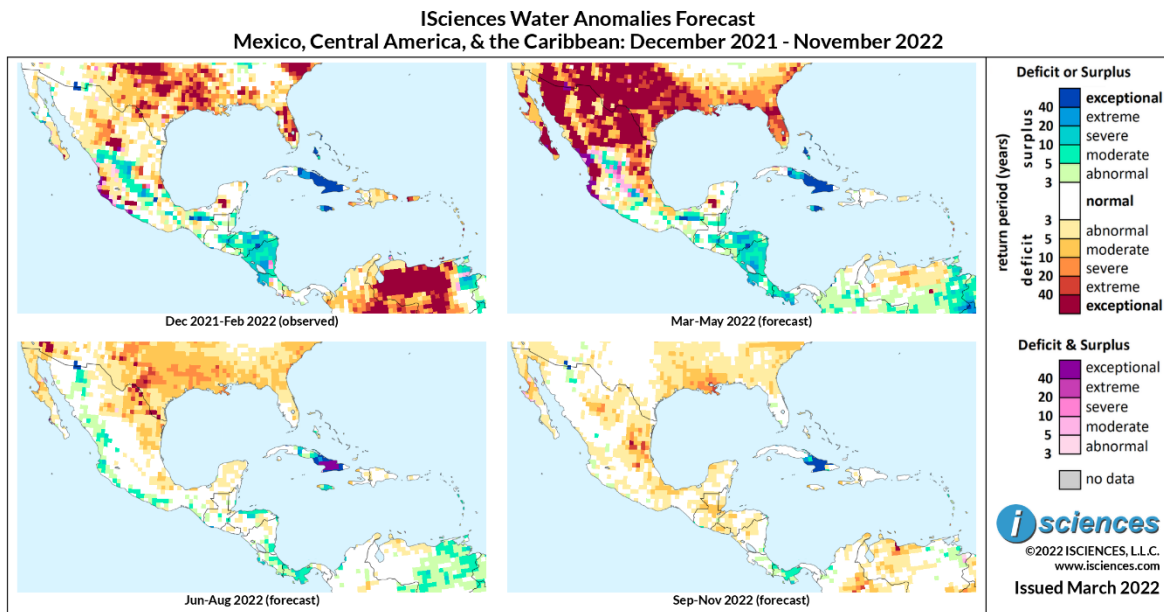


Based on observed data through February 2022 and forecasts through November 2022

Some pockets of moderate deficit are forecast in Veracruz, intensifying in the land-locked state of San Luis Potosi. Yucatán State on its namesake peninsula can expect moderate deficits. A small pocket of surplus is forecast in Chiapas surrounding the Nezahualcóyotl (Malpaso) Reservoir.

In Central America, pockets of primarily moderate surplus are expected in Honduras, Nicaragua, Costa Rica, and western Panama. In the Caribbean, surpluses will be intense in Jamaica and Cuba, and moderate to severe in the central Bahamas.

The 3-month maps (below) show the evolving conditions in more detail.



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates the emergence of widespread, exceptional deficits in northern Mexico, southern Baja, and along the Pacific Coast through Sinaloa into coastal Jalisco. Deficits of

varying intensity are forecast in a broad path through northeastern states along the Gulf of Mexico from Tamaulipas into Veracruz and land-locked San Luis Potosi. Central Mexico can expect mixed conditions with some surpluses in Zacatecas, the Federal District, and along the west coast from Michoacan to Acapulco. Surpluses are also forecast in the south in Chiapas where anomalies will be exceptional near the Nezahualc6yotl Reservoir. A pocket of exceptional deficit is forecast in central Campeche State in the Yucat6n. In Central America, widespread surpluses will persist in Guatemala and Nicaragua, and surpluses will increase in Costa Rica, Panama, Belize, and pockets in Guatemala. In the Caribbean, intense surpluses are expected in Jamaica, Cuba, and the central Bahamas. Deficits will retreat from Hispaniola.

From June through August, deficits in Mexico are expected to shrink and downgrade considerably, leaving deficits of varying intensity in Coahuila and generally moderate deficits in Nuevo Le6n, Tamaulipas, eastern Chihuahua, and Baja. Moderate surpluses will emerge in the Yaqui/Bavispe River Watersheds of northeastern Sonora, in southern Durango, and in pockets near the Pacific Coast from Jalisco through western Oaxaca. Surpluses will shrink considerably in Central America, downgrade in Jamaica and Cuba, and retreat from the Bahamas.

The forecast for the final three months – September through November – indicates deficits of varying intensity Mexico’s northeastern states and pockets in the north. Some pockets of moderate deficit are expected in northern Central America and moderate surpluses in Panama. Surpluses will linger in Cuba.

Please note that WSIM forecast skill declines with longer lead times.

## South America

The 12-month forecast through November indicates widespread water deficits from southern Brazil into Paraguay and Argentina, in Peru's northern half, and throughout much of Chile. Areas of significant surplus include the eastern Amazon River Basin, Brazil's large northeastern states, and western Bolivia.

Deficits will be severe to exceptional in the southern Brazilian states of Mato Grosso do Sul, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul. In Brazil's far northeast and far west, moderate deficits are predicted. Surpluses, generally moderate, are forecast in the eastern Brazilian Amazon but anomalies will be exceptional in eastern Amazonas. Surpluses are also expected in western Pará, southern Maranhão, Bahia, and Minas Gerais.

Across the northern arc of the continent, intense deficits are forecast from Bogota, Colombia nearly to Caracas, Venezuela; in a pocket of south-central Venezuela; and in Suriname. Surpluses are expected in the Orinoco Delta and Venezuela's southern tip.

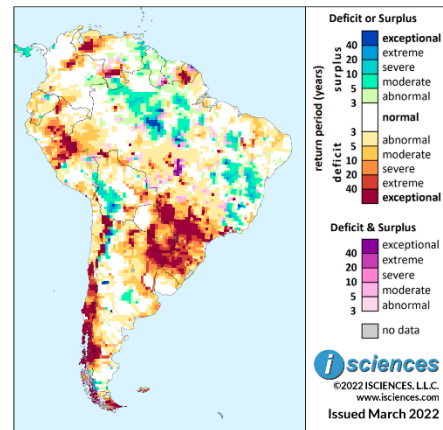
Intense deficits will be widespread in much of Peru's northern half and will be exceptional in the middle reaches of the Ucayali River Watershed. Moderate deficits are forecast for western Ecuador. Southwestern Bolivia can expect surpluses, severe around La Paz and extreme to exceptional southeast of Lake Poopó near the source of the Pilcomayo River. Deficits are forecast in pockets elsewhere in the nation, particularly in the east.

Deficits in Paraguay's eastern two-thirds will reach well into northern Argentina. Anomalies will be extreme to exceptional on the Paraná River and exceptional around the Itaipu Dam reservoir and also in the Iberá Wetlands of northeastern Argentina. Moderate deficits will skirt the eastern Pampas region, but a pocket of moderate surplus is forecast in the central Pampas.

Deficits are forecast throughout Chile with exceptional deficits in a vast path from La Serena in the north through most of the nation's southern extent. Deficits in Chilean Patagonia will cross the border into Argentina. Exceptional deficits are forecast in Tierra del Fuego and extreme deficits in the Falklands.

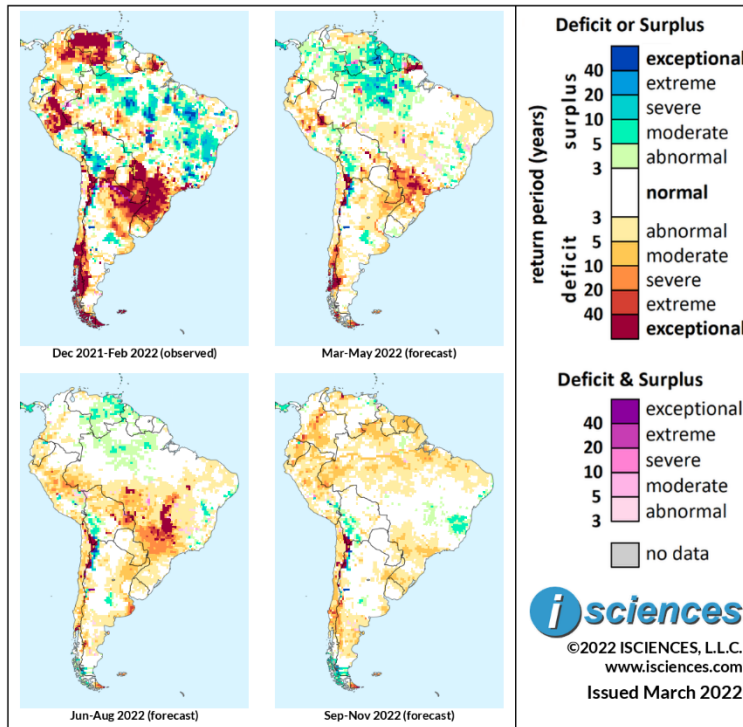
The 3-month maps (below) for the same 12-month period show the evolving conditions in greater detail.

ISciences Water Anomalies Forecast  
South America: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

**ISciences Water Anomalies Forecast**  
**South America: December 2021 - November 2022**



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates widespread surpluses in the northern Amazon Basin, Guianas, southern and eastern Venezuela, and several regions in Colombia. Exceptional deficits are expected in southern French Guiana and deficits will linger in northern Venezuela. Severe to exceptional deficits will persist in Mato Grosso do Sul, São Paulo, and Paraná, Brazil, downgrading further south. Widespread deficits in central Peru will downgrade. In Bolivia, surpluses in the southwest will moderate; deficits are forecast in the east and south. Moderate to severe deficits are expected in eastern Paraguay, northeastern Argentina, and on the Paraná River. Surpluses will linger in the central Pampas and moderate deficits in eastern Buenos Aires Province. Intense deficits are forecast in southern Chile, Tierra del Fuego, and the Falklands.

From June through August, anomalies in the north will shrink, leaving moderate surpluses primarily in central and eastern Venezuela. Deficits will persist in south-central Brazil, downgrading somewhat, but exceptional anomalies will emerge in Goiás and deficits will increase in Mato Grosso and Tocantins. Pockets of surplus are expected in Bahia and Alagoas in the east. In central Peru, deficits will moderate, reaching into Brazil. Surpluses will shrink in Bolivia; deficits will emerge in the north and persist in the east. Moderate deficits will linger in northeastern Argentina and on the Paraná River, and deficits in eastern Buenos Aires Province will intensify. Mild to moderate deficits are expected in Chile and surpluses will emerge in the Southern Patagonian Icefield.

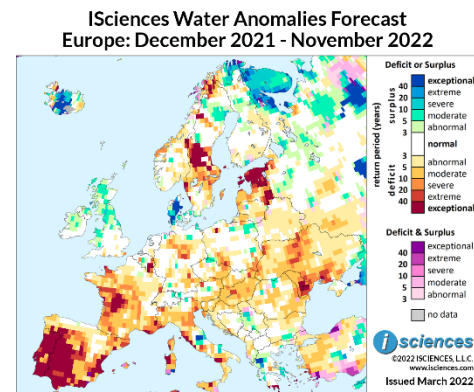
The final quarter – September through November – indicates moderate deficits in large pockets throughout the continent’s northern half, including along the Amazon River, and in southern Brazil, Chile, and central Patagonia. Areas of surplus include Minas Gerais, Brazil, and southwestern Bolivia.

Please note that WSIM forecast skill declines with longer lead times.

## Europe

The 12-month forecast through November indicates widespread water deficits on the Iberian Peninsula and in France. Deficits will be exceptional throughout most of Portugal and western Spain. In France, deficits will be especially intense in the Vienne River region, a tributary of the Loire.

Deficits of varying intensity are forecast in northern Italy, along the Tyrrhenian Coast, in the southern Apennines, and in Sicily and Sardinia. Intense surpluses are expected in Umbria, Italy and the Pindus Mountains in Greece.



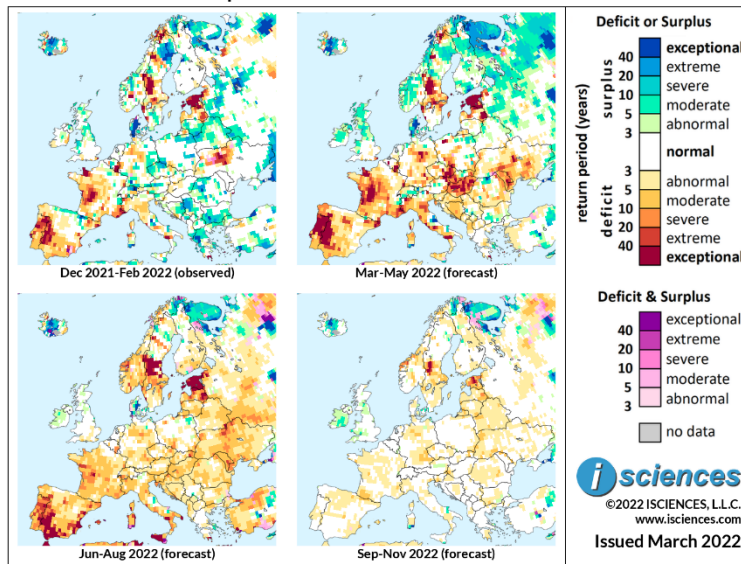
Based on observed data through February 2022 and forecasts through November 2022

Deficits are forecast for many pockets of Central Europe, notably exceptional deficits in southern Belgium and deficits of varying intensity in north-central Germany, eastern Czech Republic, and throughout Hungary. Scattered, small pockets of moderate surplus are also expected. In Eastern Europe, deficits will be widespread in Ukraine and Moldova and will be severe to extreme west of Kyiv and in the south, and exceptional in southern Moldova including the capital, Chisinau. Large pockets of moderate deficit are predicted in Romania. Moderate surpluses are forecast in Wales, Northern England, Scotland, and pockets of Ireland.

In Northern Europe, intense surpluses are forecast in Denmark, central Iceland, and Arctic Norway, and in European Russia in Murmansk, the Middle Volga River region, and Vychegda Lowland. Areas expected to have surpluses of lesser intensity include southern Norbotten in Sweden and the Svernavya Dvina River Watershed in northern Russia. Exceptional water deficits are forecast in central Sweden's Dalälven River Watershed and Estonia, and deficits of varying intensity in Latvia. Moderate deficits are expected near Moscow and in Kursk Oblast, Russia.

The 3-month composites (below) for the same 12-month period show the evolving conditions.

ISciences Water Anomalies Forecast  
Europe: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates that water deficits will increase as surpluses in Central Europe and the Balkans decrease. Widespread deficits of varying intensity are forecast for the Iberian Peninsula and France including exceptional anomalies in Portugal's northern half and western Spain. Deficits will also intensify north of Barcelona. In France, deficits will be exceptional in the Vienne River region, a tributary of the Loire, and in Normandy, and nearly as intense in the Riviera. Italy, too, can expect deficits, though surpluses are expected in eastern Umbria. Deficits will be intense throughout Hungary, reaching north through western Slovakia into Czech Republic, and will also be intense in southern Belgium. Deficits of varying intensity are forecast in Germany, southwestern Poland, much of Ukraine's southern half, and Moldova. Mixed conditions are forecast in the Balkans and moderate surpluses in the Swiss Alps. Surpluses are forecast in northern European Russia, Finland, northern Sweden, Norway, central Iceland, Wales, Northern England, Scotland, and Ireland. Surplus anomalies will be intense in Denmark and Iceland, and in Murmansk, the Vychegda Lowland, and Middle Volga River regions of Russia.

From June through August, surpluses will shrink considerably as deficits increase. Notably, deficits will emerge in eastern Spain, Norway, eastern Europe, and Russia. Though moderate overall, intense anomalies are forecast on the Iberian Peninsula, Sicily, Estonia, and central Sweden. Areas of surplus include Iceland, pockets of Denmark, Murmansk, and the Vychegda Lowland and Middle Volga in Russia.

The forecast for September through November indicates lingering, intense deficits in Estonia and central Sweden, and relatively mild deficits in France, Germany, and western Ukraine. Surpluses will emerge in southern Ireland and persist in Iceland and several aforementioned regions of Russia.

Please note that WSIM forecast skill declines with longer lead times.



## Africa

The 12-month forecast through November indicates widespread water deficits throughout the northwest from Mauritania through Algeria and Tunisia including many areas of exceptional deficit. Mixed conditions are expected in Libya and Egypt. The small coastal nations of westernmost Africa can expect moderate deficits.

Surpluses are forecast in the central and eastern Sahel, dipping south well into Nigeria and South Sudan. Anomalies will be exceptional around Lake Débo in the Inner Niger Delta of central Mali; in central Nigeria surrounding the capital, Abuja; and near the city of Kano in northern Nigeria. Surpluses are forecast along the Nile and Atbara Rivers in Sudan and will be widespread in southern Sudan and South Sudan, reaching into northern Uganda. Anomalies will extend into Eritrea and the Tigray and Afar regions of northern Ethiopia, while transitions (pink/purple) are expected in the Ethiopian Highlands.

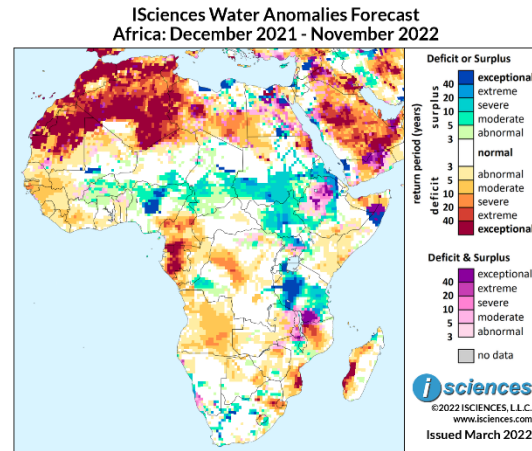
In the Horn of Africa, deficits are forecast in Somaliland and southern Somalia. Transitional conditions along with exceptional surpluses are forecast for the Nugaal Valley.

Along the Gulf of Guinea, deficits are forecast through central and southern Cameroon, becoming exceptional in Equatorial Guinea and Gabon. In the heart of the continent, severe deficits are forecast in the Tshuapa River region of the Congo Basin in Democratic Republic of the Congo (DRC). Surpluses are expected in Brazzaville and Kinshasa in the west and along the Lukuga River in the east near Lake Tanganyika.

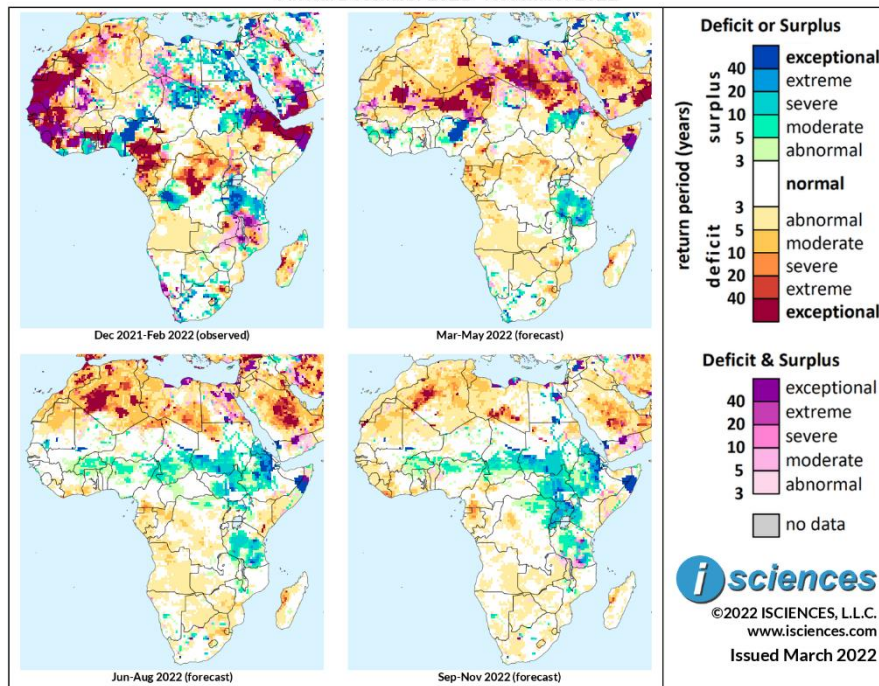
Widespread surpluses are expected in Tanzania, exceptional in the west. Intense deficits are predicted for northern and southeastern Mozambique. In Madagascar, deficits are expected along much of its western coast, exceptional in the central and southern extent. Deficits will be widespread in Angola though moderate overall.

Elsewhere, pockets of deficit are forecast in Zambia, Zimbabwe, Botswana, and western Lesotho. Severe deficits are forecast in Eswatini, becoming more intense as they reach into South Africa towards Johannesburg. Some surpluses are also expected in pockets of the southern nations, particularly South Africa where areas of surplus include Western and Northern Cape and central Free State.

The 3-month maps (below) show the evolving conditions in greater detail.



ISciences Water Anomalies Forecast  
Africa: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates deficits in the northwest, moderate overall but with exceptional pockets from eastern Mauritania through Niger. Mixed conditions are forecast in Libya and Egypt with surpluses in the north and intense deficits in the south. Sudan can expect deficits in its northern half, including intense anomalies, and surpluses in the southeast. In coastal West Africa, scattered surpluses are forecast from Guinea through Nigeria where anomalies will be widespread and exceptional from Abuja past Kano. Deficits, generally moderate, are predicted in Central Africa from Equatorial Guinea through northern DRC into southern Uganda. Deficits are also expected from southern Eritrea through Somaliland. Surpluses will be widespread in Tanzania, reaching into Zambia. Pockets of surplus are forecast in the Tete Sub-basin of the Zambezi River in Mozambique, southern Namibia, and South Africa, particularly Western Cape. Deficits are forecast in west-central Madagascar, from Mozambique's coastal city of Beira west into Zimbabwe, and from Eswatini into South Africa.

The forecast for June through August indicates that exceptional deficits will increase in Morocco and Algeria but shrink elsewhere in the north. Surpluses are expected in a belt from Burkina Faso through Eritrea, becoming widespread in southern Sudan, South Sudan, and western Ethiopia where surpluses will be especially intense. Surpluses elsewhere include Somalia's Nugaal region, northern Uganda, and much of Tanzania. Pockets of deficit are forecast in coastal West Africa, southern Cameroon, west-central Madagascar, and from Eswatini into South Africa.

In the final quarter – September through November – deficits will shrink in the north and surpluses will persist as in the prior forecast, increasing in Uganda and nearby, and emerging along the Nile in Egypt.

Please note that WSIM forecast skill declines with longer lead times.

## Middle East

The forecast for the 12-month period ending November indicates widespread water deficits in Saudi Arabia, Iraq, and central and northeastern Iran.

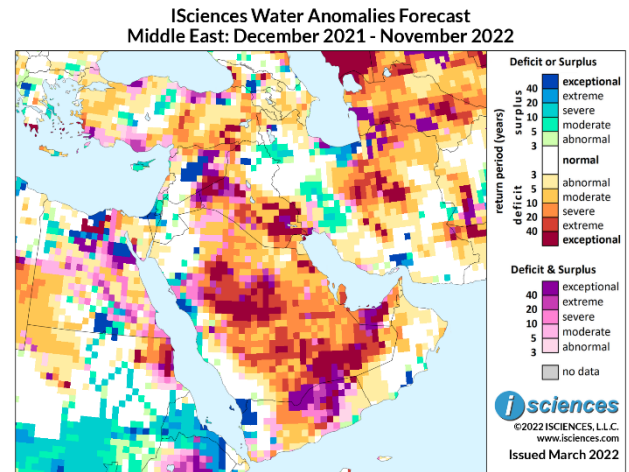
On the Arabian Peninsula, deficits of varying intensity, including exceptional, are forecast throughout much of Saudi Arabia though mixed conditions are expected in the provinces on the central shore of the Red Sea. In Yemen, exceptional surpluses are forecast northeast of Sanaa, and deficits and transitional conditions (pink/purple) in the center of the country. Extreme deficits are expected in Qatar, and intense deficits as well as transitional conditions in United Arab Emirates.

In Iraq, exceptional deficits are forecast in the south, deficits of varying intensity and transitional conditions west of the Euphrates, moderate deficits around Baghdad, and pockets of surplus in the northeast. Iran can expect intense deficits in the central provinces, downgrading somewhat in the northeast. Surpluses are expected from Tehran to the Caspian Sea Coast, in a pocket of the south near the Strait of Hormuz, in the central Zagros Mountains, and in the north approaching Lake Urmia.

Mixed conditions are forecast in the Levant including surpluses in central Israel and Cyprus, and surpluses in central Syria with deficits in the east and north. In Turkey, moderate deficits are forecast in the northwest, surpluses near Konya and in the Kizilirmak River Basin, and deficits in most other regions, including exceptional deficits southwest of Lake Van.

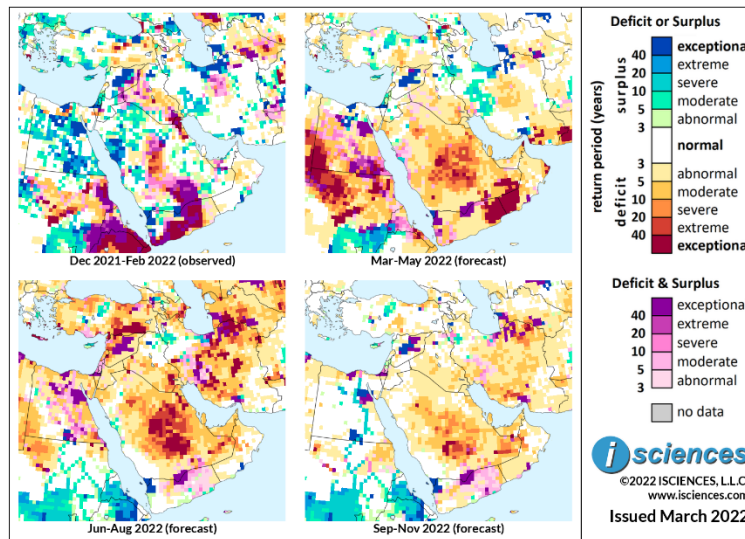
Mixed conditions are forecast in Georgia and moderate deficits in Azerbaijan.

The 3-month maps (below) show the evolving conditions in greater detail.



Based on observed data through February 2022 and forecasts through November 2022

**ISciences Water Anomalies Forecast  
Middle East: December 2021 - November 2022**



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates widespread deficits on the Arabian Peninsula. Anomalies will be exceptional spanning the border of Yemen and Oman, severe to extreme throughout Riyadh Province, and moderate in Qatar. In Iraq, moderate to severe deficits are expected in the south, some pockets of moderate deficit west of Lakes Razzaza (Milh) and Habbaniyah in the center of the country, and surpluses in the northeast. Surpluses will reach into Iran near Lake Urmia and are also forecast along the Caspian Coast into the northeast, through the central Zagros Mountains, and in the southern port city of Bandar-e-Abbas on the Strait of Hormuz. Deficits ranging from moderate to exceptional are forecast in southern Iran from the Strait to the Pakistan border, and moderate deficits in central provinces. In the Levant, surpluses are expected in central Syria, central Israel, Gaza, and Cyprus. Regions of Turkey with a forecast of surplus include a pocket on the coast near Cyprus, the Konya region, and the Kizilirmak River Basin in the north. Deficits are forecast in the Upper Ceyhan River region and the Upper Kura River region. Mixed conditions are expected in Georgia.

From June through August, surpluses in the region will shrink and deficits will increase, particularly in Iran and Turkey. Deficits will intensify in Riyadh Province, becoming exceptional, while retreating from the border region of Yemen and Oman. Deficits will also intensify in southern Iraq and will increase and intensify in Iran and Turkey. Anomalies will be exceptional in many pockets of central Iran and in Southeastern Anatolia. Deficits and transitional conditions are forecast in the Levant and deficits will increase in the Lesser Caucasus region.

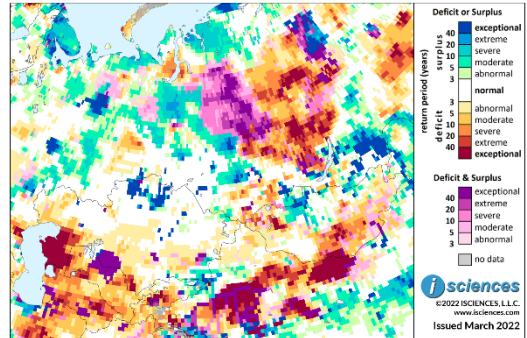
In the final quarter – September through November – deficits are expected to shrink and downgrade overall but will remain widespread in Saudi Arabia and Iran.

Please note that WSIM forecast skill declines with longer lead times.

## Central Asia and Russia

The 12-month forecast through November indicates exceptional water deficits in western Kazakhstan’s Mangystau Region and in Turkistan Region in the far south, moderate deficits north of the Caspian Sea, and exceptional surpluses in Akmola and Kostanay Regions in the north. South of Lake Balkhash, moderate deficits are forecast though conditions will be mixed in the Alatau Mountains nearby and moderate surpluses are forecast on the Ili River from Kapchagay Reservoir to the Chinese border.

ISciences Water Anomalies Forecast  
Central Asia: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

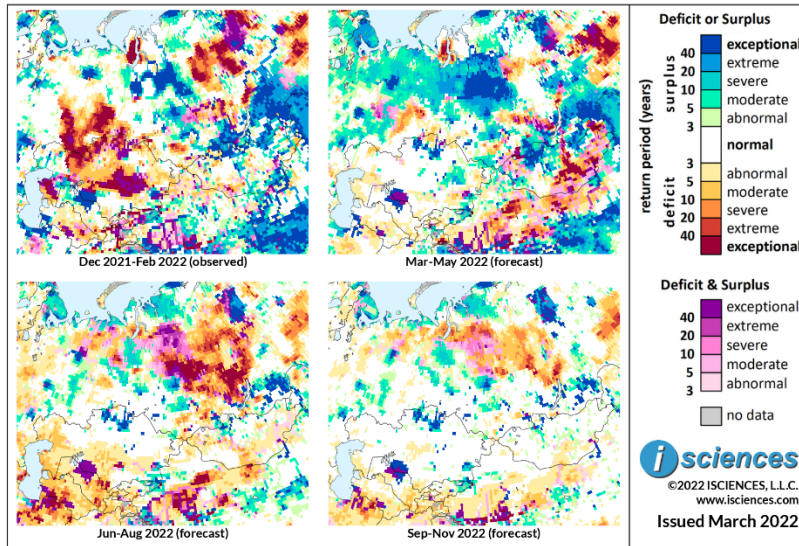
Deficits of varying intensity are forecast throughout Turkmenistan, Uzbekistan, southern Kyrgyzstan, and Tajikistan, and will be exceptional in the Fergana Valley. Surpluses are expected in eastern Kyrgyzstan.

West of the Urals in Russia, surpluses are forecast in the Vychegda Lowland and coastal north, the Middle Volga River, Trans-Volga, and Lower Volga regions. Anomalies will be exceptional in the Lowland and Middle Volga regions.

East of the Urals, deficits are forecast in the Tura River region reaching to Tyumen, and in the north spanning the Gulf of Ob. Widespread surpluses of varying intensity are forecast in much of the Western Siberian Plain with transitions at its eastern edge leading to widespread, intense deficits in the Central Siberian Plateau. Exceptional surpluses are forecast in the Plateau’s northeast between the Olenek and Tyung Rivers. In Irkutsk Oblast north of Lake Baikal, severe to exceptional deficits are forecast. Surpluses of varying intensity are expected from Lake Baikal through Russian regions bordering China, while intense deficits are forecast west of the Sea of Okhotsk.

The 3-month composites (below) for the same 12-month period show the evolving conditions in more detail.

ISciences Water Anomalies Forecast  
Central Asia: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates the emergence of widespread surpluses in Russia from the Northern European Plain into the Yenisei River Watershed and will include exceptional anomalies, especially from the Vakh River through the Lower Yenisei Watershed. Intense deficits will persist spanning the Gulf of Ob and moderate to severe deficits in Sverdlovsk Oblast in the Ural District, including the Tura River region. Deficits in the Central Siberian Plateau will shrink and intense deficits will persist west of the Sea of Okhotsk. Surpluses will remain widespread from Baikal through Russian regions bordering China. Relatively normal water conditions are expected in much of Central Asia. Intense surpluses will emerge in northern Kazakhstan, though moderate deficits are forecast on the Ishim River as it crosses the Russian border, and moderate surpluses are expected in the Kazakh Upland north of Lake Balkhash. Surpluses are forecast in eastern Kyrgyzstan and central Tajikistan, and exceptional deficits along the Pamir River in Tajikistan’s southeast.

From June through August, surpluses in Russia will shrink considerably, and deficits including exceptional anomalies will increase in the Central Siberian Plateau and Irkutsk Oblast becoming widespread. Deficits will emerge in the Pechora River Watershed in the tundra, transitioning from surplus. Surpluses east of Baikal will shrink and deficits west of the Sea of Okhotsk, while downgrading, will be severe. Deficits are forecast in Turkmenistan, Uzbekistan, southern and western Kazakhstan, and Tajikistan. Surpluses will persist in northern Kazakhstan, along the Ili River, and in eastern Kyrgyzstan.

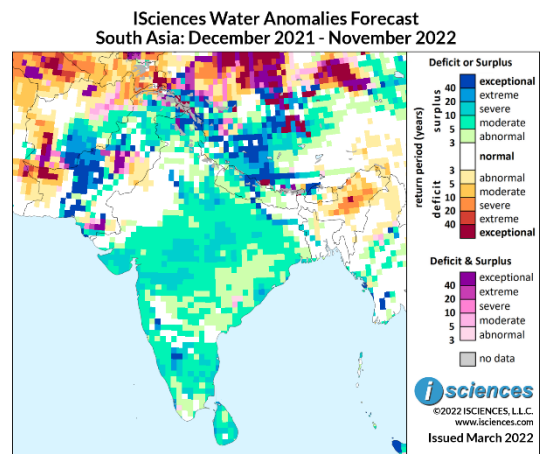
The forecast for the final months – September through November – indicates deficits from Russia’s Pechora River Watershed through the Yenisei Watershed, and in eastern Uzbekistan and Tajikistan. Surpluses are forecast in the Volga and Ob River regions, northern Kazakhstan and the Alatau Mountains, and eastern Kyrgyzstan.

Please note that WSIM forecast skill declines with longer lead times.

## South Asia

The 12-month forecast through November indicates widespread water surpluses in India. While water conditions will be normal in Rajasthan and moderate to severe deficits are expected in India's Far Northeast, surpluses are forecast for much of the nation's remaining extent.

Anomalies will reach exceptional intensity in Karnataka, Jammu and Kashmir, and pockets in Haryana. Areas with a forecast of widespread severe surplus include Gujarat, Madhya Pradesh, and Maharashtra.



Based on observed data through February 2022 and forecasts through November 2022

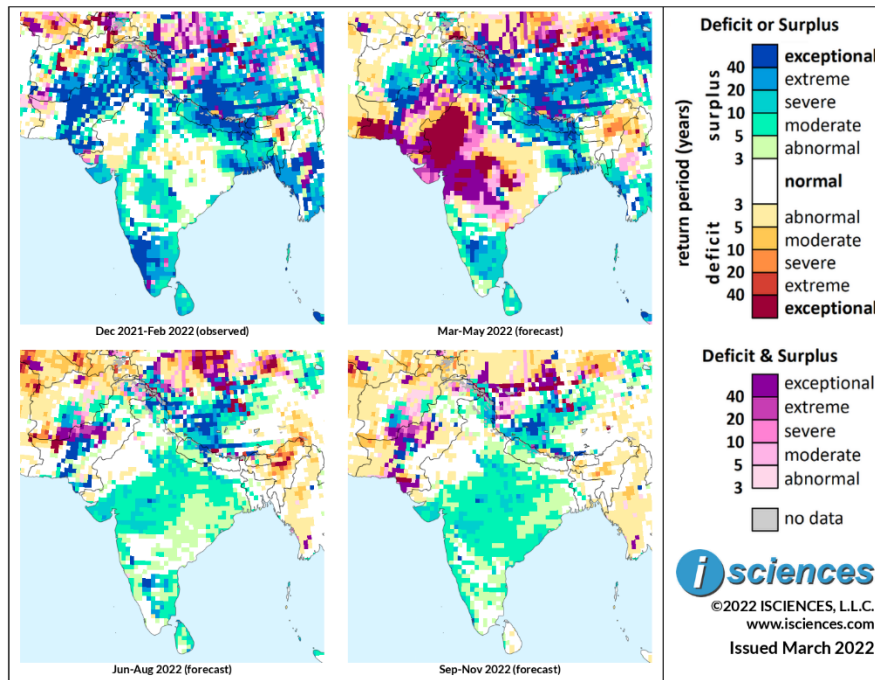
Throughout Sri Lanka, moderate to severe surpluses are forecast. Nepal's western half can expect moderate surpluses, but anomalies will be exceptional along the Gandak River as it divides the nation before joining the Ganges River in Bihar, India. In Bangladesh, surpluses will be severe on the Ganges tributary, the Padma River, though water conditions elsewhere in Bangladesh will be near-normal.

Northern Pakistan can expect moderate to severe surpluses while surplus anomalies in eastern Balochistan will be extreme to exceptional. Mixed and transitional conditions are forecast for the nation's central region at the confluence of the many river systems joining the Indus River. Surpluses will be moderate on the Sutlej River as it makes its way south. Intense deficits are forecast in western Balochistan.

Surpluses in eastern Balochistan will reach across the border into Kandahar Province in Afghanistan where anomalies will be extreme, moderating as they reach north toward Kabul. Deficits and transitional conditions are forecast in northern and southwestern Afghanistan.

The 3-month composites (below) show the evolving conditions in greater detail.

ISciences Water Anomalies Forecast  
South Asia: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates the emergence of widespread, exceptional water deficits in Rajasthan, northern Gujarat, surrounding Bhopal, and other large pockets in the center of the nation. As deficits increase, transitional conditions are also expected. Widespread surpluses will persist in southern India though exceptional anomalies will shrink, persisting in southern Karnataka. Intense surpluses are forecast in much of the Gangetic Plain through West Bengal, and in far northern India, Nepal, and western Bangladesh. India's Far Northeast can expect moderate to severe deficits. In Pakistan, moderate deficits will emerge in the east, and central regions formerly in surplus will begin to transition. Surpluses will persist in northern Pakistan and eastern Balochistan where anomalies will be exceptional, but deficits will emerge in western Balochistan, intense in the south. In Afghanistan, surpluses are forecast in the nation's eastern half, moderate in the provinces surrounding Kabul but severe to exceptional around Kandahar.

From June through August, deficits in India will nearly disappear, persisting in the Far Northeast. Widespread moderate to severe surpluses are forecast in a vast belt from Gujarat through the Gangetic Plain while surpluses in the south shrink. Surpluses will also shrink in Sri Lanka and Nepal and nearly disappear in Bangladesh. In Pakistan, surpluses and transitional conditions are forecast, particularly west of the Indus River. Deficits in western Balochistan will nearly disappear though anomalies will intensify in a pocket near the Afghan border and across the border. Surpluses in Afghanistan will shrink.

The forecast for the final months – September through November – indicates widespread, moderate surpluses in India, lingering deficits in the Far Northeast, and mixed conditions in Pakistan and Afghanistan. Please note that WSIM forecast skill declines with longer lead times.



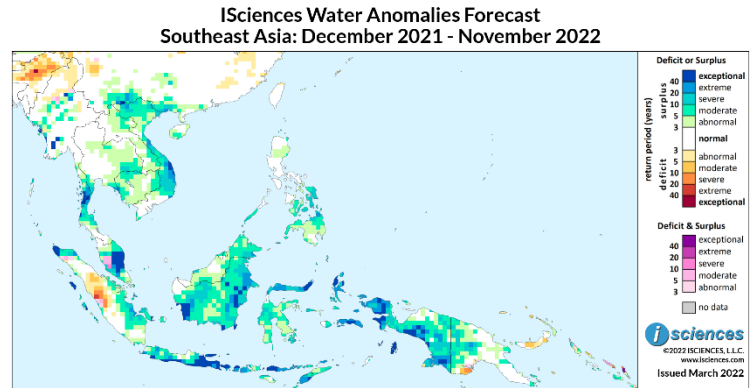
## Southeast Asia and the Pacific

The 12-month forecast through November indicates water surpluses of varying intensity in several regions in Southeast Asia and much of the Pacific.

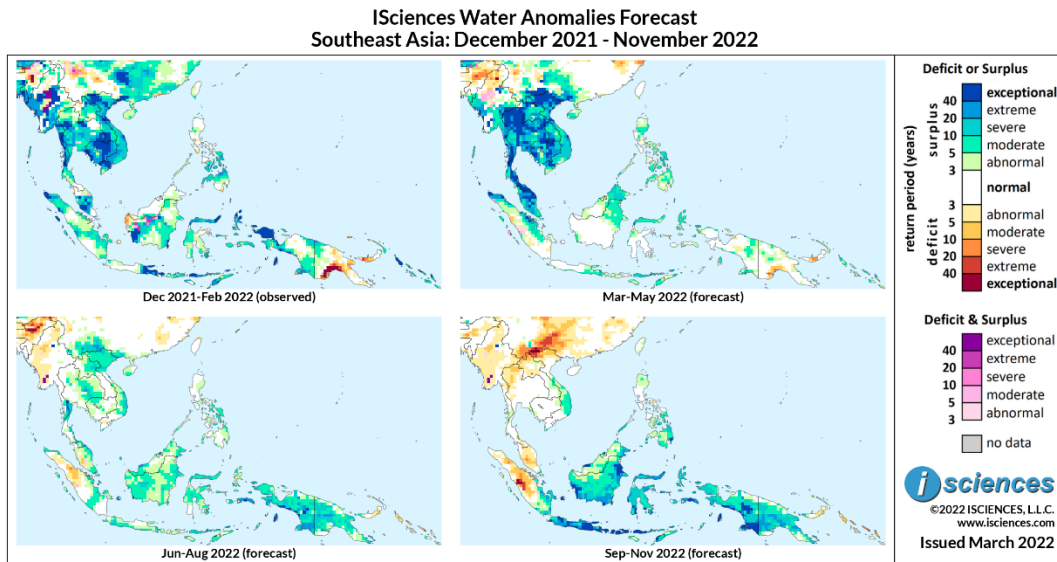
Widespread surpluses are expected in most of Vietnam, moderate in the north but more intense in the narrows and from the Highlands to the coast. Mild to moderate surpluses are forecast in Cambodia, eastern Thailand, and parts of Laos, but anomalies will be more intense in Peninsular Thailand. In Myanmar, small pockets of surplus are forecast, and surpluses will trail through the southernmost tip. Peninsular Malaysia can expect exceptional surpluses.

Surpluses will be moderate to severe in the central and southern Philippines. Surpluses of varying intensity are forecast for many regions of Indonesia and western Papua New Guinea. Areas with a forecast of exceptional surplus include Banda Aceh (Sumatra's northern tip); eastern Java; Flores Island; Sulawesi's northern arm; and the Bird's Head Peninsula on New Guinea. Deficits are forecast in central Sumatra and the western shore of the Gulf of Papua.

The 3-month maps (below) show the evolving conditions in more detail.



Based on observed data through February 2022 and forecasts through November 2022



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates that widespread, intense surpluses will persist in Southeast Asia, but surpluses in Indonesia and Pacific regions will shrink and downgrade. Severe to exceptional surpluses are forecast throughout Vietnam, Laos, Cambodia, Thailand, and Peninsular Malaysia. Exceptional

surpluses will be especially widespread in northwestern Thailand and anomalies will follow the Chao Phraya and Tha Chin Rivers in the south. In Myanmar, severe to extreme surpluses will persist in the western coastal and near-coastal states, and surpluses of varying intensity are forecast in the east and through the nation's narrow southern extreme. Deficits are forecast in the north. In the Philippines and northeastern Borneo, moderate to severe surpluses are expected, but more intense anomalies are forecast intense in eastern Sumatra and Banda Aceh. Surpluses, generally moderate, are also forecast for eastern Java, Flores and Timor Islands, Sulawesi's northern arm, the northern Maluku Islands, and pockets of New Guinea. Deficits on the Gulf of Papua will moderate, and severe deficits are forecast on the island of New Britain.

From June through August, surpluses will shrink considerably and moderate in Southeast Asia but increase in Indonesia and New Guinea. Primarily moderate surpluses will linger in northern regions of Vietnam and Laos, Vietnam's central coast, eastern Thailand into Cambodia, and along the shared southern border of Thailand and Myanmar. Conditions in the rest of Myanmar will normalize overall with some moderate deficits in Sagaing State in the northwest. In Indonesia and the Pacific, surpluses of varying intensity will emerge throughout most of New Guinea and deficits around the Gulf of Papua will retreat. Moderate surpluses are forecast for pockets of Malaysia and the central Philippines, many regions in Indonesian Borneo, much of Sulawesi and Flores Island, and parts of Java, southern Sumatra and Aceh, and Timor. Surpluses will be more intense in the southern Maluku Islands. Moderate deficits are forecast in northeastern Sumatra.

The forecast for the final months – September through November – indicates that surpluses will linger in central Vietnam, retreating elsewhere in Southeast Asia. Deficits are expected in northern regions of Southeast Asia and in Peninsular Malaysia and central Sumatra. Widespread surpluses are forecast in remaining areas of Indonesia and New Guinea as anomalies increase and intensify.

Please note that WSIM forecast skill declines with longer lead times.

## East Asia

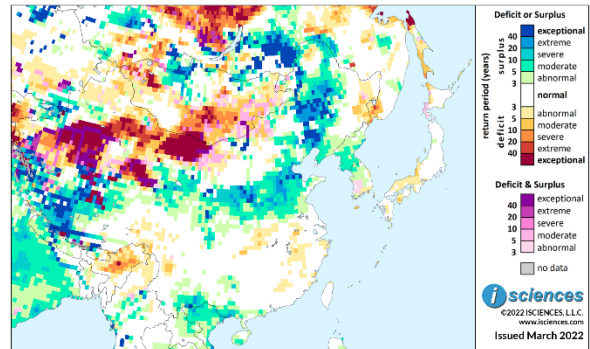
The 12-month forecast for East Asia through November indicates widespread severe to exceptional water surpluses in Northeast China. Anomalies will be particularly widespread from eastern Inner Mongolia into Jilin. Moderate surpluses are expected in the Liaodong Peninsula on the Bohai Sea and in North Korea. Deficits are expected in China's far northeast.

Surpluses of varying intensity are forecast in the vast Yellow River (Huang He) Watershed and into the North China Plain, though nearly normal conditions are expected along the river's Ordos Loop. Normal water conditions are expected in the Yangtze River Watershed, but moderate surpluses are forecast in the Sichuan Basin. In southern China, surpluses are expected in eastern Yunnan, southern Guangxi, and southern Hainan. Western Tibet (Xizang) will see intense surpluses including exceptional surpluses on the Yarlung (Brahmaputra) River. Widespread deficits are forecast from western Inner Mongolia across the breadth of Xinjiang Uygur and will include exceptional anomalies. Exceptional deficits are also forecast in northern Qinghai.

In Mongolia, deficits will be intense in the western Gobi Desert, the lakes region in the nation's northwest, and a pocket surrounding Ulaanbaatar. Surpluses are forecast in the Khovsgol region in the north and in the central Hangayn Mountains and the central Hentiyn Mountains. Near-normal conditions are forecast for Japan.

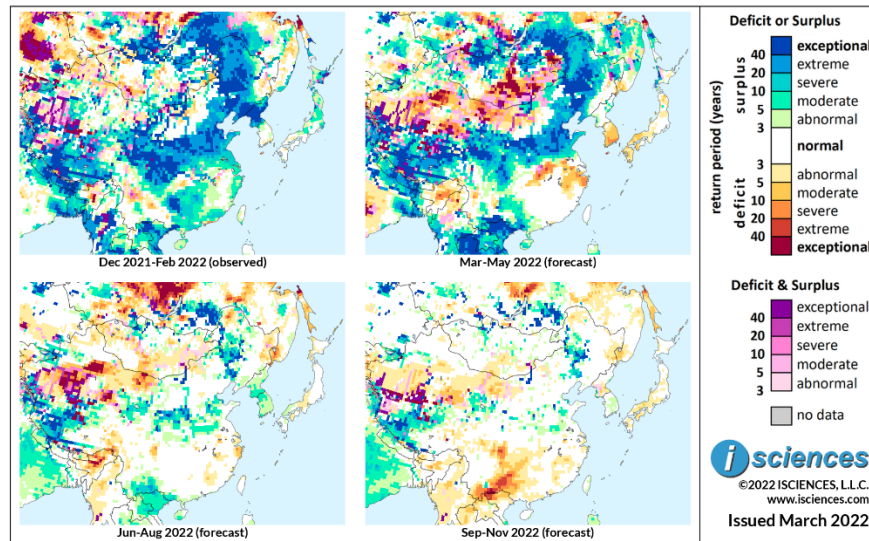
The 3-month time series maps below show the evolving conditions in more detail.

ISciences Water Anomalies Forecast  
East Asia: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

ISciences Water Anomalies Forecast  
East Asia: December 2021 - November 2022



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates persistent, widespread surpluses from Northeast China through the North China Plain and much of the vast Yellow River Basin. Surpluses will be extreme to exceptional in many regions, particularly in the Northeast. Surpluses will nearly disappear in the Yangtze River Watershed, persisting with intensity in the Sichuan Basin, and moderate to severe deficits will emerge in parts of the river's lower and middle catchment from Shanghai to Three Gorges Dam. In South China, surpluses will retreat from the eastern Pearl River (Zhujiang) region but emerge in the river's western tributaries and increase somewhat in Hainan. Widespread deficits of varying intensity will emerge in western Inner Mongolia, northern Qinghai, and across Xinjiang Uygur. In Mongolia, exceptional deficits and transitional conditions (pink/purple) are forecast across the Gobi Desert in the south. Exceptional deficits will reach north past Ulaanbaatar; surpluses are forecast in much of the remaining northern extent. Moderate to severe deficits are expected in South Korea, moderate deficits in southern Japan, and surpluses on Hokkaido's west coast.

From June through August, surpluses, while shrinking and downgrading considerably in China, will persist in the Northeast and Yellow River Basin. Surpluses in South China will shrink in most of the western Pearl River Watershed but will increase in southern Yunnan. Conditions in the Yangtze Basin will be nearly normal with some deficits lingering south of Shanghai and emerging from former surplus in a pocket in the Sichuan Basin. Deficits from western Inner Mongolia through northern Qinghai and Xinjiang Uygur will shrink somewhat. Surpluses will persist in western Tibet and mild deficits will emerge in the east. Anomalies in Mongolia will shrink and downgrade considerably. On the Korean Peninsula, moderate surpluses will appear, transitioning from deficit in the south. Near-normal conditions are forecast in Japan.

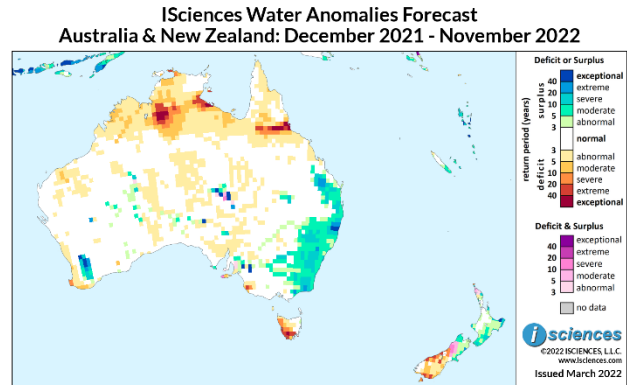
The forecast for the final three months – September through November – indicates that deficits will increase in Sichuan and emerge in Yunnan, Guizhou, and Guangxi as surpluses disappear. Surpluses will persist in Northeast China and pockets in the Yellow River Basin.

Please note that WSIM forecast skill declines with longer lead times.

## Australia & New Zealand

The 12-month forecast through November indicates widespread water surpluses in eastern Australia from Rockhampton, Queensland through eastern Victoria.

Anomalies will be widespread in New South Wales reaching exceptional intensity in the North Coast region and severe to extreme intensity in Sydney. Surpluses are also forecast along the Lachlan and Murray Rivers.



Based on observed data through February 2022 and forecasts through November 2022

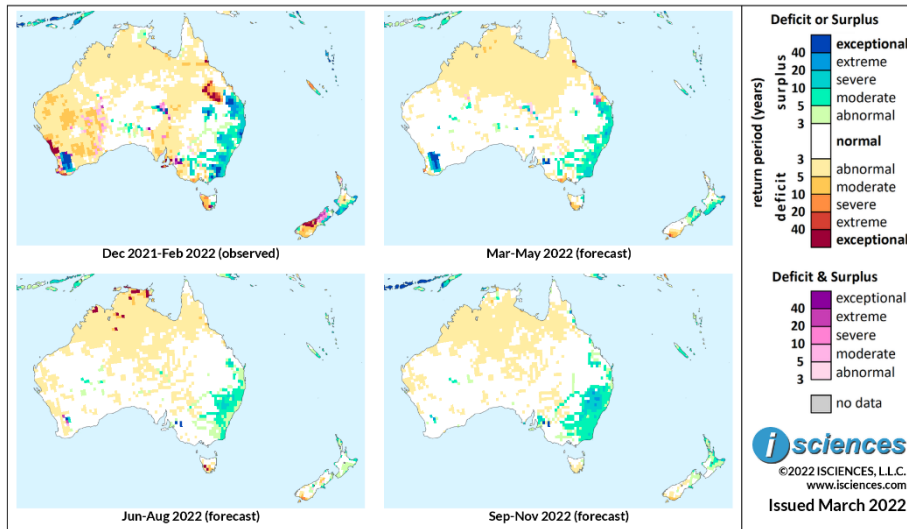
Some areas of intense deficit are expected across northern Australia. Deficits will be severe to exceptional in the Victoria River catchment of Northern Territory, along the western corner of the Gulf of Carpentaria, and from the Gregory Range in northern Queensland to the coast near Townsville. Deficits of generally lesser intensity are forecast east of Darwin in coastal Top End, Northern Territory, and pockets in the Kimberley in Western Australia. In the nation’s southwest corner, severe to exceptional water surpluses are forecast in the Avon River catchment leading south, and deficits will skirt the coast near Busselton.

Severe to exceptional deficits will dominate western Tasmania, the Derwent Estuary, and Hobart. Deficits are also expected on Kangaroo Island off mainland Australia near Adelaide and in the Limestone Coast region to the east.

In New Zealand, moderate to extreme deficits are predicted for South Island’s southern half, and surpluses in coastal areas of the north. Surpluses are also expected in North Island from Wellington to East Cape. In New Caledonia, moderate surpluses are forecast in the south.

The 3-month maps (below) show the evolving conditions in greater detail.

**ISciences Water Anomalies Forecast  
Australia & New Zealand: December 2021 - November 2022**



Based on observed data through February 2022 and forecasts through November 2022

The forecast through May indicates that while downgrading, surpluses will remain widespread in eastern Australia from Bundaberg on Queensland’s coast through the Murray-Darling Basin and coastal regions into Victoria. Anomalies will be moderate to severe. Surpluses will shrink in the Shire of Paroo in South West Queensland, but persist in the Grampians of western Victoria, and intense surpluses will re-emerge in the Lower Murray region. Deficits will linger on the coast west of Melbourne and are also forecast on northern Queensland’s coast between Cairns and Townsville and near Rockhampton. Western Australia will continue to see intense surpluses in the Avon River catchment and deficits will persist in Busselton. In Tasmania, moderate deficits are forecast in the south and moderate surpluses will emerge in the northeast corner. In New Zealand, deficits are forecast in South Island’s southern tip and nearby Stewart Island, and surpluses are forecast in the island’s northern half and across Cook Strait into North Island from Wellington through East Cape. Surpluses are also forecast in the southern half of New Caledonia.

From June through August, surpluses in eastern Australia will continue to shrink and downgrade but will remain widespread in eastern New South Wales. Anomalies will be mild to severe. In Top End, Northern Territory, small pockets of exceptional deficit will emerge in coastal Arnhem Land, in the Victoria River catchment, and also in the northern Kimberley region of Western Australia. In Tasmania, moderate deficits are expected in Hobart and the Derwent Estuary and exceptional deficits near Lakes Gordon and Pedder. Deficits will linger in South Island’s southern tip, and surpluses are expected in Christchurch and coastal extremes in North Island. Moderate surpluses will persist in southern New Caledonia.

The forecast for the final months – September through November – indicates that surpluses will increase in southeastern Australia, moderate overall but severe to extreme from Dubbo to Armidale in New South Wales. Deficits will retreat. Surpluses will increase in North Island and New Caledonia.

Please note that WSIM forecast skill declines with longer lead times.