

Global Water Monitor & Forecast Watch List

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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 1-9 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 October 2020 and an ensemble of forecasts issued the last week of October 2020. 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 in a given month. 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 anomaly. For example, a return period of 10 years indicates an anomaly that would occur, on average, once every ten years. Higher return periods indicate more extreme and, therefore, more disruptive anomalies. 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. Return period is computed by comparison to cell-specific distributions of data from 1950 through 2009.

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.

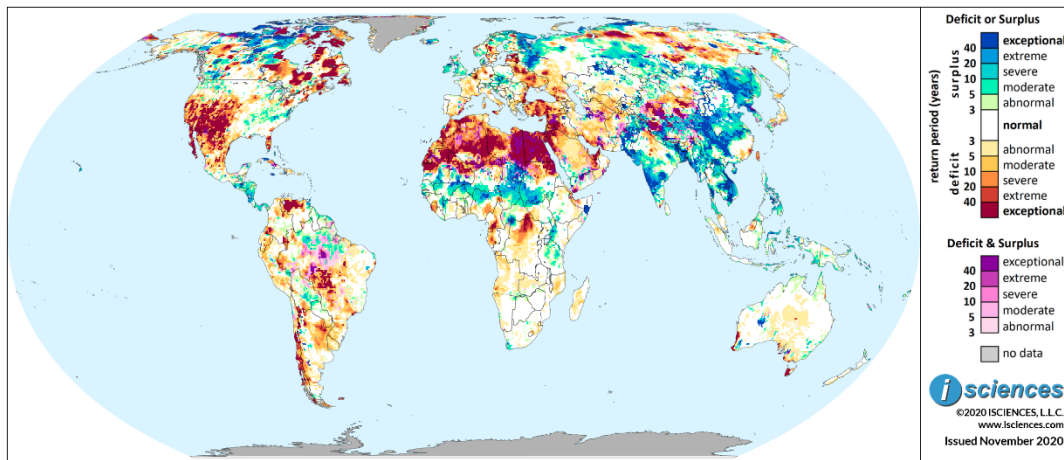
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Worldwide Water Watch List

This map presents a selection of regions likely to encounter significant water anomalies during the one-year period beginning in August 2020 and running through July 2021 using 3 months of observed temperature and precipitation data and 9 months of forecast data.

ISciences Water Anomalies Forecast: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

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 January 2021 indicates that widespread, intense water deficits in the West, Southwest, and Northeast will shrink and downgrade considerably. Intense deficits are forecast for Colorado, Nebraska, Kansas, and Florida. Surpluses will emerge in the Northwest.

Canada: The forecast through January 2021 indicates vast blocks of intense water deficit in the eastern half of the nation and deficits in southern Manitoba and Saskatchewan. Surpluses are expected in southern British Columbia with exceptional surpluses near Kelowna.

Mexico, Central America, and the Caribbean: The forecast through January 2021 indicates water deficits in much of Mexico with intense anomalies in central Baja, southern Chihuahua, and from Nuevo León into Puebla. Areas of surplus include the Yucatán, Central America, Jamaica, and the Bahamas.

South America: The forecast through January 2021 indicates that water deficits will shrink considerably, but deficits are forecast from western Venezuela into Peru, and in southern Guyana, southeastern Brazil, and southern Chile. Areas of surplus include northeastern Venezuela and northern Pará, Brazil.

Europe: The forecast through January 2021 indicates that water deficits will shrink considerably. Areas of deficit include Estonia, Latvia, and Belarus. Widespread surpluses will persist in western European Russia and in Czech Republic, Slovakia, and Austria, reaching well into surrounding nations and Romania.

Africa: The forecast through January 2021 indicates that water deficits in Africa will shrink and downgrade considerably. Exceptional deficits are forecast in Nigeria's eastern Middle Belt States and southern Cameroon. Surpluses will persist in the Sahel and will shrink in East Africa.

Middle East: The forecast through January 2021 indicates that widespread water anomalies will shrink considerably. However, deficits will intensify in Georgia and re-emerge in southern Riyadh Province, Saudi Arabia. Exceptional surpluses will re-emerge in central Syria and around Mosul.

Central Asia and Russia: The forecast through January 2021 indicates widespread water surpluses in the Ob River Watershed and widespread deficits in the Lena River Watershed. Surpluses in northern Kazakhstan will remain exceptional and surpluses on the Amu Darya River will become exceptional.

South Asia: The forecast through January 2021 indicates intense water surpluses in much of western India and the Deccan Plateau, Bangladesh, eastern Nepal into western Bhutan, and in the upper Harirud and Helmand River Watersheds of Afghanistan. Deficits will emerge in northwestern India.

Southeast Asia and the Pacific: The forecast through January 2021 indicates widespread, intense water surpluses in Vietnam, Laos, Cambodia, and eastern Thailand. Surpluses of lesser intensity are expected in the Philippines and eastern Indonesia. Deficits are forecast for pockets in northern Thailand.

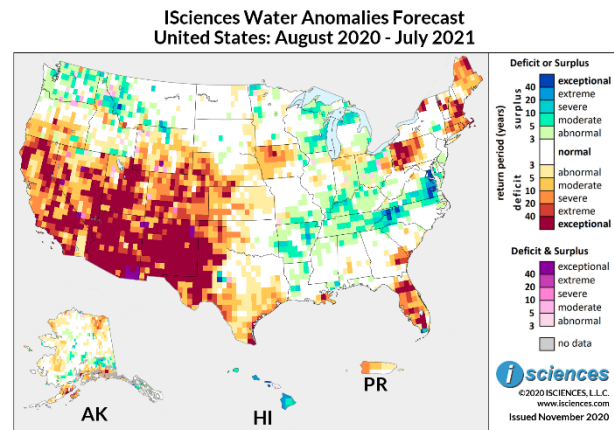
East Asia: The forecast through January 2021 indicates that widespread, intense water surpluses will persist in Northeast China and the Yellow and Yangtze Basins, shrinking south of the Yangtze. Deficits will increase in northwestern and coastal southeastern China. Deficits are forecast in Japan and surpluses in North Korea.

Australia & New Zealand: The forecast through January 2021 indicates that much of the region will return to near-normal conditions as water deficits retreat. Surpluses will persist in the central Murray-Darling Basin, increase in Riverina, and increase from Brisbane through the Australian Alps.

Watch List: Regional Details

United States

The 12-month forecast ending July 2021 indicates widespread water deficits in the southwest quadrant of the continental U.S. Deficits are expected to be exceptional in New Mexico, Arizona, and Utah. Deficits of varying intensity, including exceptional, are forecast for West Texas, California, Nevada, and Colorado, bleeding into Wyoming, Nebraska, Kansas, and western Oklahoma. Deficits will also follow the Gulf Coast in Texas reaching well into the south and southeast regions of the state.



Based on observed data through October 2020 and forecasts through July 2021

The Pacific Northwest can expect deficits in southern Oregon, and pockets of surplus in Washington, northern Idaho, and western Montana along with a few small pockets of deficit as well.

Iowa will experience deficits. Around the Great Lakes, surpluses are forecast for southern Wisconsin and from northeastern Wisconsin into northern Michigan. A few pockets of surplus are also expected in northwestern Minnesota. Some moderate deficits will skirt Michigan's southern border and reach into northern Indiana. Moderate surpluses are forecast in central Ohio, but deficits are expected in the east, becoming intense and widespread in western Pennsylvania. Deficits of varying intensity are expected in the U.S. Northeast with exceptional deficits in the St. Lawrence River region of Upstate New York and pockets in Vermont, New Hampshire, and Maine.

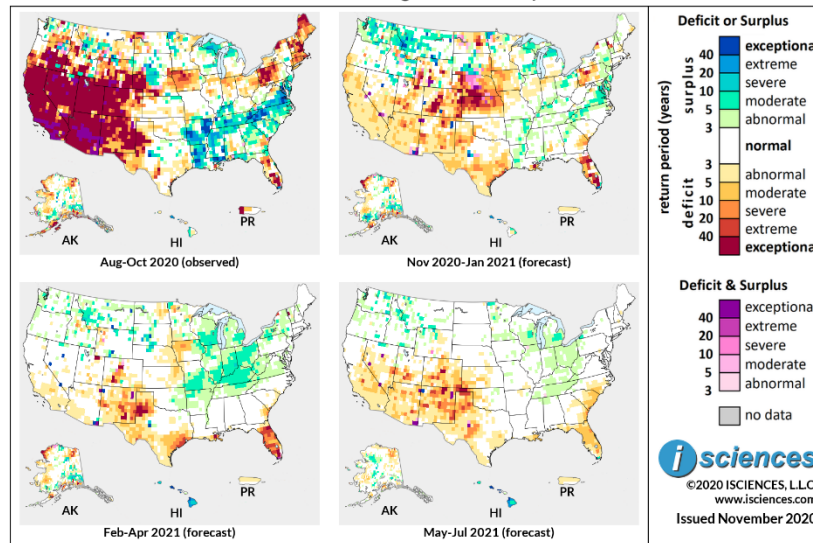
Surpluses are forecast from Washington, D.C. past Richmond, Virginia into North Carolina, and will be exceptional in the Chesapeake Bay Area and south of Richmond. Surpluses will lead inland through Virginia and the southern Blue Ridge Mountains where anomalies will reach exceptional intensity in a few pockets of North Carolina. Reaching through the southern portion of the Ohio River Watershed, surpluses will moderate. Arkansas can also expect surpluses and some pockets are expected in Louisiana, though intense deficits are forecast south of Lake Pontchartrain.

Deficits are expected in much of Florida outside of the Panhandle with exceptional deficits north of Orlando and south of Lake Okeechobee. Pockets of deficit are also forecast in southeast Georgia.

Outside the contiguous U.S., surpluses are forecast for much of Hawaii. Alaska can expect deficits west of Kodiak and from Anchorage past Valdez; in the northeast; and in pockets of the west. Surpluses are forecast north of Iliamna Lake; some pockets in the center of the state; and from Denali east to the Canadian border.

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

**ISciences Water Anomalies Forecast
United States: August 2020 - July 2021**



Based on observed data through October 2020 and forecasts through July 2021

From November 2020 through January 2021, widespread intense deficits in the West and Southwest will shrink and downgrade considerably, as will widespread surpluses from the Lower Mississippi region through Virginia and the Carolinas to the Atlantic Coast. Intense deficits will persist in Colorado and pockets of Wyoming, deficits will increase Nebraska, and moderate to exceptional deficits will emerge in much of Kansas. Deficits will downgrade in West Texas but increase across southern Texas with extreme deficits along the Gulf Coast.

In the U.S. Northwest, surpluses will emerge in Washington, Idaho, and Montana. Surpluses will persist in central South Dakota flanked by deficits in the state's southern corners. Intense deficits will emerge in a pocket of North Dakota east of Bismarck; deficits in Iowa will downgrade. Moderate surpluses will persist in southern Wisconsin and northern Michigan and will emerge in north-central Ohio. Deficits will downgrade in western Pennsylvania and will recede considerably in New England. Moderate surpluses are forecast from southern Delaware through eastern Virginia and into the southern Blue Ridge Mountains. Deficits will be intense in Peninsular Florida but moderate in southeastern Georgia.

From February through April 2021, normal water conditions will return to many regions. However, deficits will increase in Peninsular Florida; persist south of Lake Pontchartrain; intensify along the Gulf Coast of Texas and south of Amarillo; persist in New Mexico, intensifying in the southeast; and persist in central Colorado. Surpluses will shrink in the Pacific Northwest, persist in western Montana and south-central South Dakota, and re-emerge in north-central Nebraska. Moderate surpluses are forecast in the Ohio River Watershed, southern Wisconsin, southeastern Michigan, and Arkansas.

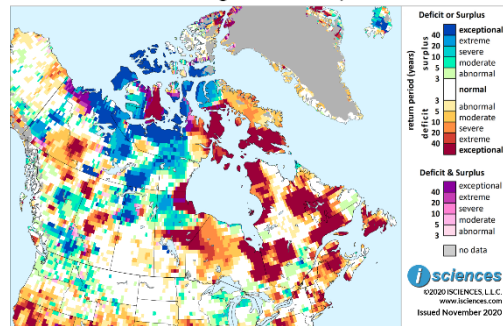
The forecast for the final months – May through July 2021 – indicates moderate deficits in Florida and along the South Atlantic Coast, and deficits of varying intensity in western Texas, the Southern Rockies, and Southwest. Pockets of surplus are forecast in the Northern Rockies, Pacific Northwest, and around the Great Lakes. Please note that WSIM forecast skill declines with longer lead times.

Canada

The 12-month outlook for Canada through July 2021 indicates vast areas of water deficit in the eastern half of the nation. Areas of exceptional deficit include vast blocks on Quebec’s northeastern border leading into western Labrador, along the Gulf of St. Lawrence, west of Lake Mistassini in Quebec, and spanning the Quebec/Ontario border.

Deficits will also be intense in Newfoundland, New Brunswick, and in Northern Ontario’s Kenora District. Surpluses are forecast in Quebec south of Lake Saint-Jean, and in Ontario west of Ottawa and along the shore of Hudson Bay.

Isciences Water Anomalies Forecast
Canada: August 2020 - July 2021



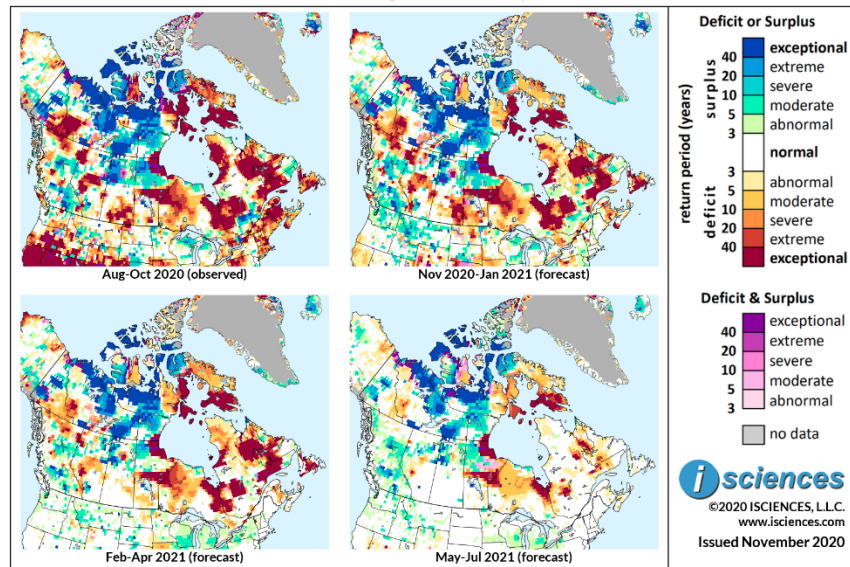
Based on observed data through October 2020 and forecasts through July 2021

Exceptional deficits are forecast on Hudson Bay in Manitoba, in a belt across the center of the province north of Lake Winnipeg reaching into Ontario, and around Winnipeg. Large pockets of surplus are forecast in north-central and northwestern Manitoba. Northwestern Saskatchewan can expect conditions of severe to exceptional surplus leading north well past Lake Athabasca into the Northwest Territories and west across the border with Alberta. Surpluses are also expected around Calgary, Alberta. Deficits will reach exceptional intensity in central Alberta in the Middle Reaches of the Athabasca River Watershed and in the province’s northwest corner spanning the border with British Columbia. Deficits are also forecast for north-central British Columbia, expanding as they reach well into the Yukon and intensifying in the Northwest Territories.

In British Columbia, surpluses will be moderate in the north around Fort St. John and exceptional around Williston Lake. Surpluses of varying intensity are forecast in the Fraser River Watershed in the south where surpluses will be exceptional near Kamloops. Vancouver Island’s central Pacific region can expect extreme deficits.

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

**ISciences Water Anomalies Forecast
Canada: August 2020 - July 2021**



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates that vast areas of exceptional deficit will persist along Quebec’s border into Labrador, along the Gulf of St. Lawrence, west of Lake Mistassini, and spanning the northern portion of the Ontario/Quebec border. Intense deficits are also forecast in Newfoundland and southern Nova Scotia. Deficits will shrink from Montreal through the Gaspé Peninsula and New Brunswick. Surpluses south of Quebec’s Gouin Reservoir will downgrade. Deficits will persist northeast of Toronto, Ontario and in western Kenora District; moderate surpluses will persist along Hudson Bay.

In Manitoba, exceptional deficits will persist along Hudson Bay and across the center of the province, with surpluses between. Deficits will increase in the southern half of the province. Intense deficits are forecast in southeastern Saskatchewan and surpluses in the north. In Alberta, deficits will persist in the Middle Athabasca River region and in the northwest crossing into British Columbia; surpluses are expected near Calgary and in the north around Lake Claire. In British Columbia, surpluses will increase in the south, remaining exceptional near Kelowna, and will persist around Lake Williston in the north, reaching east past Fort St. John. Deficits will shrink but remain intense on Vancouver Island, and intense deficits will persist in northern British Columbia.

From February through April 2021, deficits will downgrade in the Maritimes, persist with intensity in Newfoundland and large blocks of Quebec, shrink and moderate in southern Manitoba and Saskatchewan, downgrade in the Middle Athabasca River region of Alberta, and retreat from Vancouver Island. Surplus anomalies in the Prairie Provinces and British Columbia will shrink somewhat.

The forecast for the final months – May through July 2021 – indicates that conditions in many regions of the country will normalize though pockets of intense deficit are forecast in Quebec, Ontario, and Manitoba. Surpluses are expected the northern reaches of the Prairie Provinces and in central and southern British Columbia. Please note that WSIM forecast skill declines with longer lead times.

Mexico, Central America, and the Caribbean

The 12-month forecast ending July 2021 indicates deficits of varying severity in northern and central Mexico. Anomalies will be exceptional in many areas of the north including the Baja Peninsula, northwestern Sonora, Chihuahua, and Coahuila.

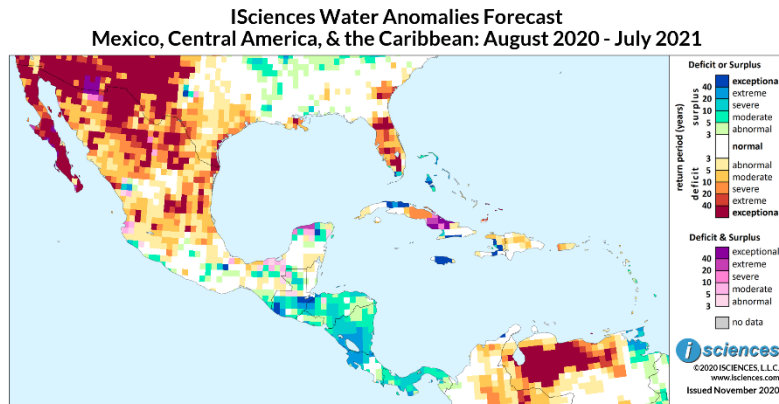
In central Mexico, a wide belt of deficits will reach from Nayarit on the Pacific Coast to Tamaulipas

and Veracruz on the Gulf of Mexico and will include pockets of exceptional deficit, particularly in San Luis Potosi. A few small pockets of surplus are forecast scattered throughout the southern states.

Surpluses of varying intensity are forecast for many regions in Central America and will be exceptional in pockets of Guatemala and extreme from southern Nicaragua into northern Costa Rica.

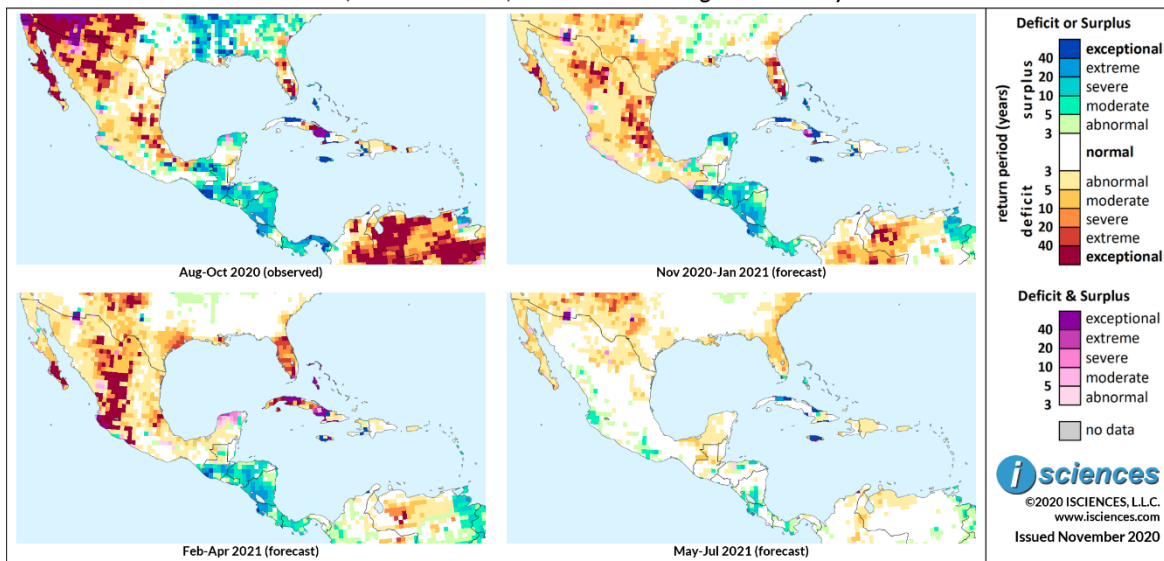
In Cuba, severe deficits are expected in Sancti Spíritus and Ciego de Ávila Provinces in the center of the nation, and surpluses near Havana. Deficits are also forecast for Turks and Caicos Islands and Dominican Republic; surpluses are expected in Jamaica and the Bahamas.

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



Based on observed data through October 2020 and forecasts through July 2021

ISciences Water Anomalies Forecast
Mexico, Central America, & the Caribbean: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates water deficits of varying intensity in much of Mexico outside of the Yucatán Peninsula. Though deficits will be mild to moderate in many regions, several large areas will experience more intense anomalies: deficits will be exceptional in central Baja; severe to exceptional in southern Chihuahua; and severe to exceptional in a broad path from southern Nuevo León into San Luis Potosi, Tamaulipas, northern Veracruz, Querétaro, Hidalgo, and northern Puebla. Surpluses in the southern states will shrink and downgrade overall but will intensify in the northern region of the Yucatán Peninsula.

Surpluses will persist throughout Central America and will be particularly intense in southern Guatemala and from southern Nicaragua into Costa Rica. Deficits in the Caribbean will nearly disappear, and areas of surplus include Jamaica, Cuba, and the Bahamas.

From Feb through April 2021, a wide path of exceptional deficit will emerge in Mexico from Durango south through Jalisco, trailing into Michoacán. Deficits of varying intensity will persist in the northern states of Chihuahua and Coahuila, and exceptional deficits will emerge in southern Baja while moderating in central Baja. Around the Gulf, deficits will shrink and downgrade overall but remain intense in central Veracruz and regions in neighboring land-locked states. Surpluses will shrink considerably in the northern Yucatán but persist in much of Central America. In the Caribbean, deficits will emerge in Cuba and the Bahamas along with transitional conditions. Surpluses will persist in western Jamaica.

The forecast for the final three months – May through July 2021 – indicates nearly normal conditions for much of Mexico with some moderate deficits in Baja, the central north, and Tabasco and Chiapas in the south; and scattered surpluses near the Pacific Coast. Surpluses in Central America will shrink. Deficits will nearly disappear in the Caribbean and pockets of surplus are forecast in Jamaica, Cuba, and the Bahamas.

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

South America

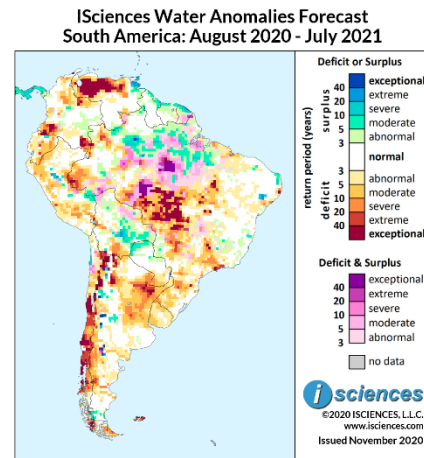
The 12-month forecast through July 2021 indicates intense water deficits in a vast region of west-central Brazil, and in northern Venezuela, Colombia’s southern corners, pockets throughout much of Chile, and straddling Argentina’s northern provinces of Chaco and Corrientes.

In Brazil, deficits will be widespread from Rondônia through Mato Grosso, Tocantins, and Mato Grosso do Sul. Anomalies will be exceptional in many areas of Mato Grosso. Deficits of varying intensity are expected in the western state of Acre, the state of São Paulo on the Atlantic Coast, and the southern states. Surpluses are forecast in the northeastern Amazon Basin with transitional conditions directly south.

Coastal regions of Guyana, Suriname, and French Guiana can expect moderate surpluses. Surpluses are also forecast for the Orinoco Delta in Venezuela, but exceptional deficits will form a wide band north of the Apure and Orinoco Rivers. Deficits are forecast in northern Colombia and in its southern corners, as previously mentioned. Generally moderate deficits are forecast for Ecuador and through the Andes in Peru and the Cordillera Orientales in Bolivia. Northern and eastern Peru can expect a few pockets of surplus. Surpluses are also forecast in central Bolivia near Santa Cruz and into northern Paraguay.

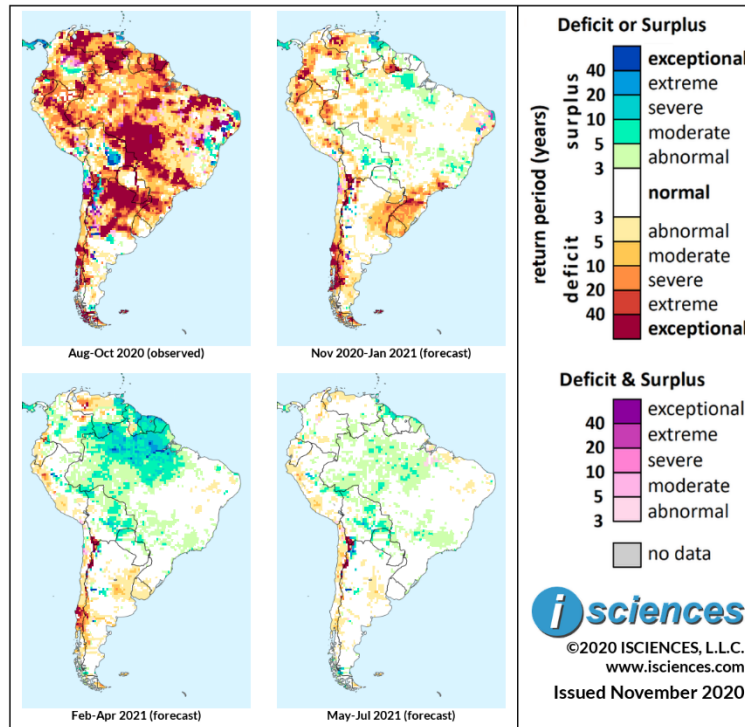
Intense deficits are expected in many regions of Chile including exceptional anomalies on the Bio-Bio River in south-central Chile and extreme deficits near Valparaiso and Santiago. Northeastern Argentina and the northern Pampas can expect deficits. Scattered, isolated surpluses will pock western Argentina, but deficits are forecast near the Chilean border. In the south, severe deficits are forecast along the Chico River in Chubut Province and in Tierra del Fuego, and deficits in the Falkland Islands will reach exceptional intensity.

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



Based on observed data through October 2020 and forecasts through July 2021

ISciences Water Anomalies Forecast
South America: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates that deficits will shrink and downgrade significantly, but many areas can expect anomalies. Deficits of varying intensity are forecast in an arc from western Venezuela into Peru. Deficits in southern Guyana will intensify but moderate surpluses will emerge in its coastal north and surpluses will increase across the border in northeastern Venezuela. Surpluses are also expected in coastal French Guiana. In Brazil, moderate surpluses will emerge in pockets of the northern Amazon Basin, particularly in northern Pará, and smaller pockets in Brazil's easternmost tip and Minas Gerais in the southeast. Deficits are forecast in the south from São Paulo State through Rio Grande do Sul and anomalies will be intense north of the metropolis of São Paulo, in Santa Catarina State, and along the Uruguay River as it flows through Brazil, Uruguay, and Argentina. Deficits are also forecast in some pockets of central and western Brazil.

Surpluses in south-central Bolivia will shrink and downgrade and moderate deficits are forecast through the Cordillera Oriental Range. Nearly normal conditions are expected in Paraguay with some moderate deficits in the south leading into moderate to severe deficits in northeastern Argentina. Deficits will blanket Uruguay but will be primarily moderate. In Chile, moderate deficits are forecast in central Chile and extreme to exceptional deficits in much of the south, crossing the border into Argentina. Deficits will be intense in Tierra del Fuego and the Falklands.

From February through April 2021, normal water conditions will return to many regions of the continent with deficits persisting primarily in pockets of western Venezuela, Bolivia's southern tip, and southern Chile. Widespread surpluses will emerge from the northern Amazon Basin into Colombia, Venezuela,

northern Guyana, Suriname, and French Guiana. Surpluses will be exceptional in the Lower Amazon until it reaches the Trombetas River, a northern tributary. Moderate surpluses will increase in eastern Bolivia reaching into Paraguay, and will emerge in pockets of western Colombia, from north-central Peru into Bolivia, and in San Luis Province in central Argentina.

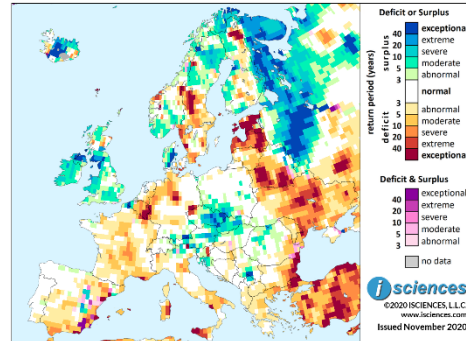
In the final quarter – May through July 2021 – surpluses in the north will shrink considerably. Some small pockets of exceptional deficit will persist in Bolivia’s southern tip and along the northern border shared by Chile and Argentina.

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

Europe

The 12-month forecast through July 2021 indicates intense water deficits from the Baltics to the Black Sea including extreme to exceptional deficits in much of Estonia and Latvia and large pockets in Belarus, central Ukraine, eastern Bulgaria, and the Don River Watershed and North Caucasus region in Russia. Exceptional deficits are forecast for Finnish Lapland and deficits of varying intensity in Sweden’s southern half.

ISciences Water Anomalies Forecast
Europe: August 2020 - July 2021

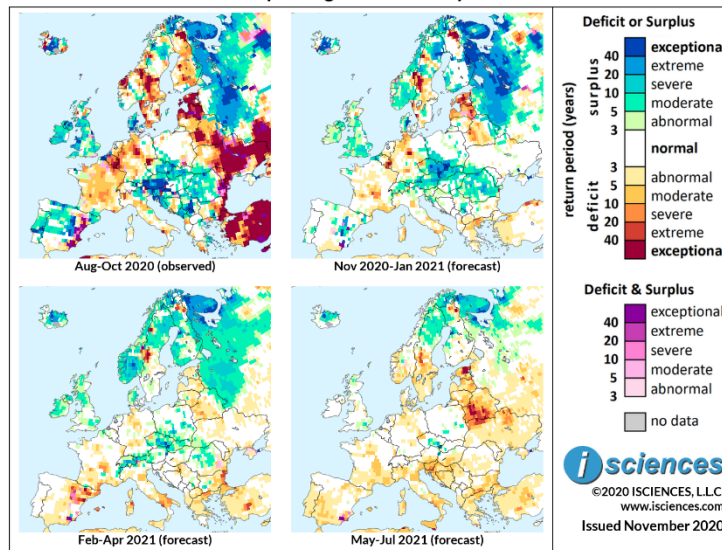


Based on observed data through October 2020 and forecasts through July 2021

Widespread, intense surpluses are forecast for western European Russia and surpluses of varying intensity in Sweden’s northern half, around the Gulf of Bothnia, and in southern Norway, Denmark, much of the United Kingdom, and Ireland. Surpluses are also forecast in Czech Republic and will reach into surrounding nations including Slovakia, Poland, Austria, and Hungary. Other areas with a forecast of surplus include northwestern Romania, southern Serbia into Kosovo, and western Croatia.

Western and Mediterranean Europe can expect deficits of varying intensity. Deficits are forecast in pockets from northern Germany through much of France and several areas in Italy and Greece. Anomalies will be especially intense in Belgium and Luxembourg, the Harz and Erzgebirge Mountain ranges in Germany, and Sardinia and Sicily. Generally moderate deficits are forecast for France, but deficits will be severe in Auvergne. Normal conditions are expected in Spain’s northwest quadrant with mixed conditions elsewhere, primarily deficits. The 3-month composites (below) for the same 12-month period show the evolving conditions.

ISciences Water Anomalies Forecast
Europe: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates that deficits will shrink considerably, returning Ukraine and southern European Russia to near-normal conditions from prior widespread, exceptional deficit. Deficits remain in the forecast, however, for Estonia and Latvia, Finnish Lapland, central Sweden, and Belarus. Deficits are also expected in pockets of Germany; southern Belgium and Luxembourg; Auvergne and Provence, France; pockets of Italy; and Macedonian Greece. Regions with intense deficits include Estonia and Belgium/Luxembourg.

Widespread surpluses will persist in western European Russia and will be extreme to exceptional. Surpluses will also continue to be widespread in Central and parts of Eastern Europe, particularly in Czech Republic, Slovakia, and Austria, reaching well into surrounding nations, along rivers, and through Romania. The extent of exceptional surplus in Czech Republic will shrink, but anomalies will be extreme. Some pockets of moderate surplus are expected in the northern Balkans. In the U.K. and Ireland surpluses will persist but moderate, and surpluses on the Iberian Peninsula will shrink considerably, persisting primarily in Castile La Mancha in central Spain.

From February through April 2021 surpluses will downgrade in western European Russia but remain widespread; increase somewhat in the Nordic nations; and shrink overall in Central and Eastern Europe, the U.K., and Ireland. Deficits will shrink and downgrade in southern Sweden, the Baltics, Belarus, and Germany, and will retreat from Belgium and Luxembourg. However, deficits will persist in pockets of France and Macedonian Greece, intensify somewhat in southern Italy, and emerge in northeastern Spain and eastern Bulgaria.

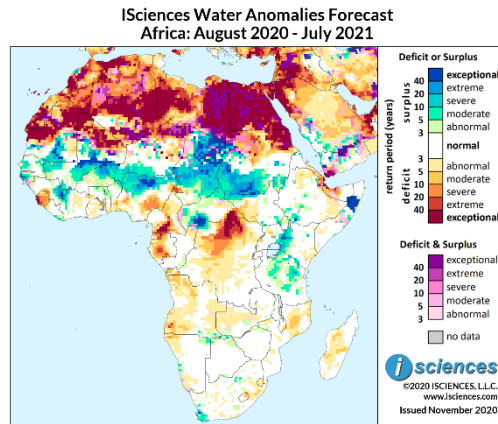
The forecast for the remaining months – May through July 2021 – indicates that surpluses will shrink considerably, persisting in northern European Russia and northern Scandinavia, and in pockets of Czech Republic and Poland. Deficits will increase in southern Norway and southern Sweden, and from the Baltics through Eastern Europe, becoming intense in Estonia and Belarus. Generally moderate deficits are expected in many pockets Mediterranean Europe reaching into central France and as far east as Bulgaria.

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

Africa

The 12-month forecast through July 2021 indicates widespread, intense water deficits across North Africa including many areas with exceptional anomalies. Mixed conditions of both deficit and surplus are also forecast as transitions occur (pink/purple).

Surpluses of varying intensity are forecast across the Sahel, reaching into northern Nigeria where anomalies will be exceptional and southern Sudan where surpluses will be extreme to exceptional. In the Horn of Africa, surpluses will be exceptional in the Nugaal region of northern Somalia. Deficits are forecast from eastern Eritrea into western Somaliland.



Based on observed data through October 2020 and forecasts through July 2021

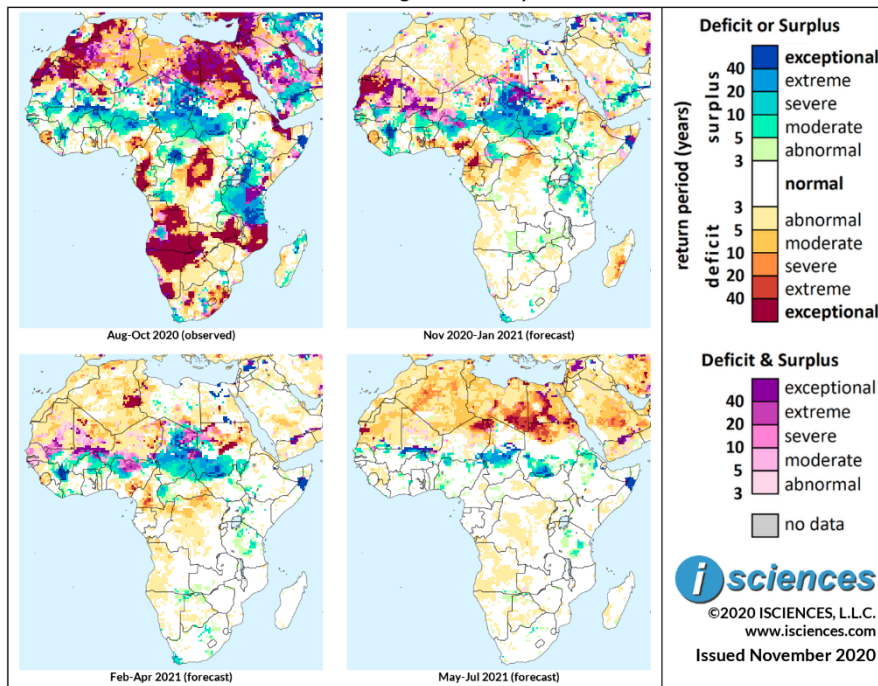
West Africa can expect surpluses in Senegal, Guinea Bissau, and from eastern Guinea into northwestern Côte D'Ivoire, but deficits are forecast in Sierra Leone and in Nigeria's eastern Middle Belt States. Deficits are also forecast surrounding Cameroon's northern city of Maroua, and from south central Cameroon through Equatorial Guinea and Gabon and will include intense anomalies. In Central African Republic, exceptional surpluses will dominate the area around the capital city of Bangui while exceptional deficits are expected in the nation's southeast leading well into Democratic Republic of the Congo, downgrading somewhat through the northern Congo River Basin.

In East Africa, surpluses are forecast from southern Ethiopia through the border region of western Kenya and Uganda, and in large pockets of central Tanzania.

Much of southern Africa will see nearly normal water conditions. However, deficits are forecast for Angola's northwestern and southwestern corners, a large pocket in north-central Mozambique, pockets in central Madagascar, and northern Lesotho. Surpluses are forecast in South Africa's southwest corner fanning inland from Cape Town.

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

ISciences Water Anomalies Forecast
Africa: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates that deficits in Africa will shrink and downgrade considerably, leaving mild deficits or mixed conditions in North Africa and nearly normal conditions in many regions of the south. Some areas of exceptional deficit are expected to persist in the western Sahara Desert, south-central Cameroon, and west of Khartoum, Sudan; and will increase in Nigeria's eastern Middle Belt States. Moderate deficits are expected in Sierra Leone, but deficits of greater intensity will emerge through central Ghana, Togo, and Benin.

Surpluses of varying intensity will persist in a vast path across the Sahel along with conditions of both surplus and deficit (pink/purple) as transitions occur. Surpluses will be widespread in Chad and southern Sudan. From eastern Guinea into Côte D'Ivoire, surpluses will intensify, moderating as they reach south to the coast. Surpluses will also moderate in western Central African Republic and in East Africa, where anomalies will shrink. In Somalia's Nugaal region, intense surpluses will persist but transitions are also forecast.

Deficits will remain exceptional in southern Cameroon but will moderate in Gabon and in northern Democratic Republic of the Congo (DRC). In Madagascar, surpluses will retreat, and moderate to extreme deficits will emerge in the east-central region. In southern Africa, surpluses will persist near Cape Town, South Africa and a few pockets west of Lesotho. Some moderate surpluses will emerge in northeastern Botswana.

From February through April 2021, deficits in North Africa will continue to downgrade becoming mild overall with pockets of intense deficit in east-central Algeria and central Sudan. Surpluses will persist in the Sahel, downgrading slightly, and transitional areas are also forecast. Exceptional surpluses will

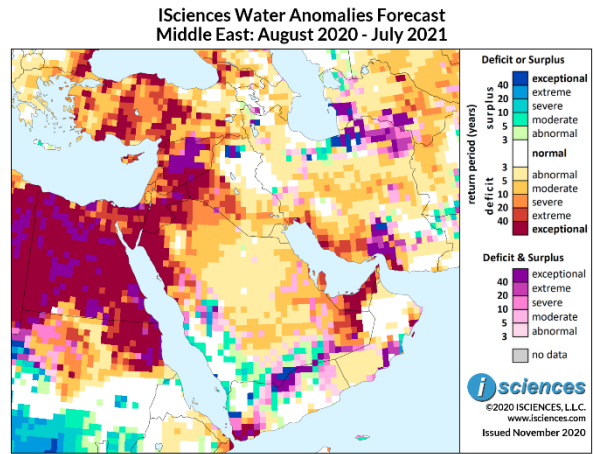
persist from eastern Guinea into Côte D'Ivoire and will re-emerge from transitional conditions in Nugaal, Somalia. Deficits will persist in aforementioned areas of Nigeria, Cameroon, and DRC, but will shrink and downgrade. Moderate surpluses are expected in western Central African Republic; pockets of East Africa; the border region joining Angola, Namibia, and Botswana; and in South Africa near Cape Town and west of Johannesburg.

The forecast for the final quarter – May through July 2021 – indicates that deficits will increase in the north, primarily moderate but intense in the northeast. Surpluses will shrink in the Sahel, persist in northern Somalia and pockets of Tanzania, and will emerge in the border region of Ethiopia and Eritrea.

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

Middle East

The forecast for the 12-month period ending July 2021 indicates intense water deficits in the Levant, much of Turkey, Iraq west of the Euphrates River, and northern Saudi Arabia. Exceptional deficits will cover nearly all of Jordan and many pockets elsewhere. Transitional conditions (pink/purple) are forecast for northern Syria and a small pocket near Mosul in Iraq, where intense surpluses are also forecast. Mild to moderate deficits are expected in central Saudi Arabia but anomalies will be more intense in the southeast corner, becoming exceptional in United Arab Emirates. Extreme deficits are forecast for Qatar.



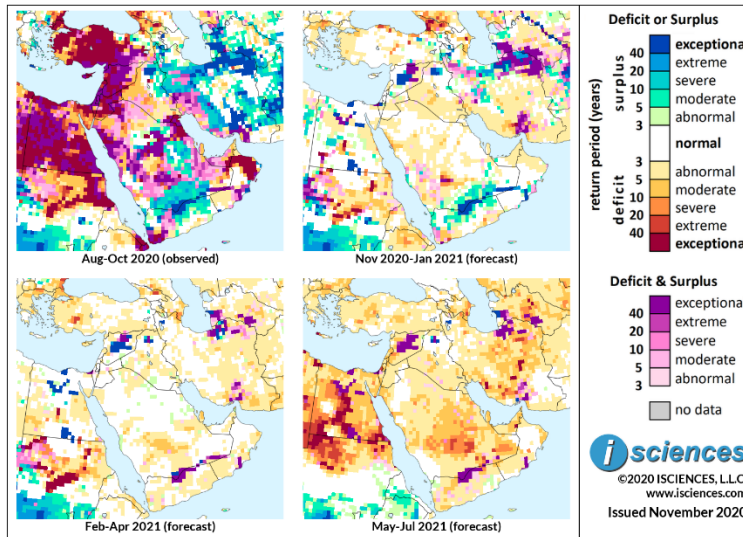
Pockets of surplus are expected in southwestern Saudi Arabia and along much of Saudi Arabia's southern border reaching well into Yemen. Surpluses will be moderate overall and transitional conditions are also forecast. Intense deficits are forecast for Yemen's southwestern tip along with both deficits and surpluses as transitions occur.

Deficits reaching extreme intensity are expected along the Persian Gulf in Iran, and exceptional deficits with transitional conditions near the Strait of Hormuz. Moderate deficits are predicted in central Iranian provinces. In the north, surpluses are expected in Tehran leading to transitional conditions in the northeast near Turkmenistan.

Deficits ranging from moderate to exceptional are forecast for Georgia and moderate deficits are predicted in Azerbaijan.

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

ISciences Water Anomalies Forecast
Middle East: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates that widespread water anomalies, deficits and surpluses, will shrink considerably in the region. In Georgia, however, deficits will intensify with severe to exceptional anomalies forecast. Small pockets of deficit will trace Turkey’s central and eastern Black Coast and severe deficits will form a path through Kayseri Province in the center of the nation. Moderate deficits are expected in eastern Azerbaijan. Exceptional surpluses will re-emerge in central Syria though transitional conditions will persist slightly north. In Iraq, intense surpluses will persist around Mosul. In Iran, a mix of moderate surplus and transitional conditions is forecast in the northwest with extreme surpluses in the north surrounding Tehran and leading to the Turkmen border where surpluses will persist amid transitions. Transitional conditions are also forecast in southern Iran reaching inland from the Strait of Hormuz though deficits are forecast as well.

On the Arabian Peninsula, intense deficits are expected in a pocket of southern Riyadh Province and surpluses of varying intensity will span the border with Yemen and Oman, reaching well into Yemen. Moderate deficits will re-emerge in Yemen’s southwestern tip.

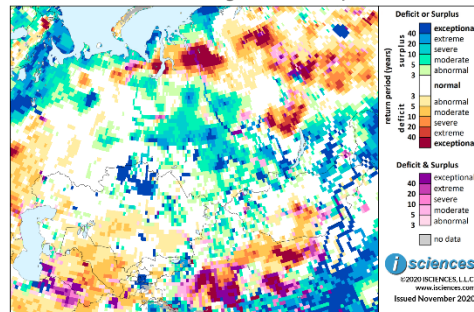
From February through April 2021, anomalies will continue to shrink leaving normal water conditions in much of the region. Deficits are forecast in small pockets of Georgia, Azerbaijan, and western Turkey. Deficits in Saudi Arabia’s Riyadh Province will moderate, and moderate deficits will emerge in Oman and in a pocket of southern Iran near the Gulf of Oman. Intense surpluses along with transitional conditions will persist in northern Syria, near Mosul, and in northeastern Iran. Transitions are forecast in Iran near the Strait of Hormuz and in Saudi Arabia along its southern border.

In the final quarter – May through July 2021 – surpluses will nearly disappear, persisting in a small pocket near Mosul. Deficits will increase, generally mild to moderate overall but more intense in southern Saudi Arabia and pockets of central Iran. Please note that WSIM forecast skill declines with longer lead times.

Central Asia and Russia

The 12-month forecast through July 2021 indicates surpluses of varying intensity in the Ob River Watershed and the Middle and Upper Yenisei River regions. Exceptional deficits are expected on the central banks of the Gulf of Ob and in the region of the Lower Yenisei. Deficits are also forecast for much of the Lena River Watershed including the Lena River Delta (not shown) and the Upper Lena River region northwest of Lake Baikal.

ISciences Water Anomalies Forecast
Central Asia: August 2020 - July 2021

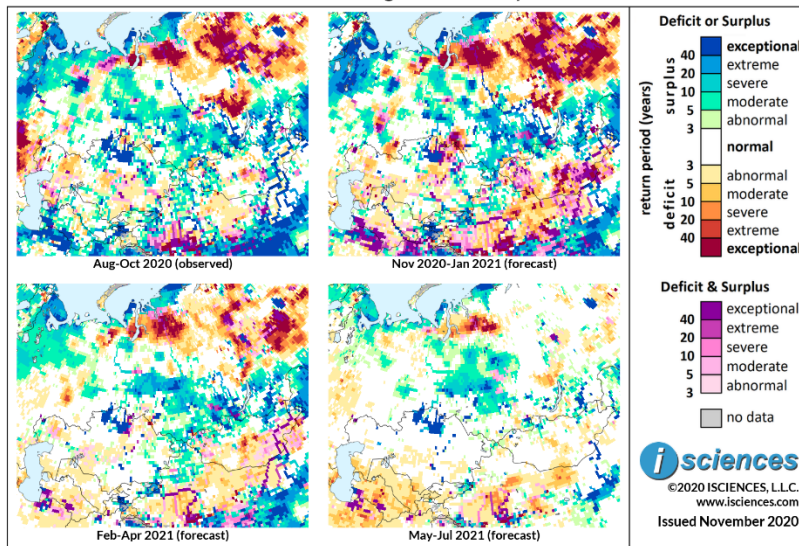


Based on observed data through October 2020 and forecasts through July 2021

In Kazakhstan, exceptional surpluses are expected in the north in the Ishim River Watershed including the capital Nur-Sultan (Astana), and surpluses of varying intensity in the eastern Kazakh Uplands. Some pockets of moderate deficit are forecast in the nation's south-central region and west. Moderate deficits are expected in much of Uzbekistan and moderate to severe deficits in Turkmenistan. Intense surpluses are forecast for the Fergana Valley and central Tajikistan, and some moderate deficits south of Dushanbe. Eastern Kyrgyzstan can expect surpluses.

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

ISciences Water Anomalies Forecast
Central Asia: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates that deficits will emerge in the Ural River Watershed straddling Russia and Kazakhtan, and east of the Irtys River. Exceptional deficits will persist on the central banks of the Gulf of Ob while widespread surpluses continue in the Ob River Watershed. Surpluses are also forecast in the Tom River Basin. A vast block of exceptional deficit will persist in the

region of the Lower Yenisei River and deficits of varying intensity in the region of its right tributaries, the Tunguska Rivers. Intense surpluses are expected along the Middle Yenisei and the Angara. Deficits will remain exceptional in the Lena River Delta (not shown) and will increase and intensify in the vast Lena River Watershed.

In Kazakhstan, surpluses in the north near Nur-Sultan will remain exceptional and widespread but deficits will begin to emerge in the region of the Irtysh River. Surpluses will persist in the eastern Kazakh Uplands though transitions will begin. Moderate surpluses will persist on the Ile River in the south, and pockets of moderate deficit will persist in the center of the country and in the west. Surpluses on the Amu Darya River through Uzbekistan and Turkmenistan will intensify, becoming exceptional, and exceptional surpluses are forecast for central Tajikistan, reaching north. Surpluses of varying intensity are expected in pockets of Kyrgyzstan and along the Naryn River.

From February through April 2021, surpluses will shrink in the Lower and Middle Ob River Watershed, and deficits around the Gulf of Ob will downgrade but will remain intense. In the Lower Yenisei River region deficits will remain widespread, downgrading slightly, and surpluses on the Yenisei itself will moderate. In the Lena River region, deficits will shrink and downgrade somewhat but many areas of exceptional deficit will persist including the Lena River Delta. In Kazakhstan, intense surpluses will persist in the north and deficits in the country will nearly disappear. Surpluses will shrink but persist in central Tajikistan and eastern Kyrgyzstan. Conditions on the Amu Darya River will return to normal.

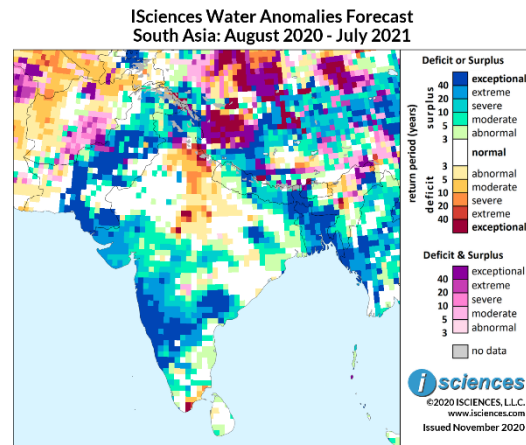
The forecast for the final months – May through July 2021 – indicates that surpluses and deficits will shrink in Russia though surpluses will remain widespread in the Ob River Watershed. Deficits will persist in the region of the Lower Yenisei River. Surpluses will persist in northern Kazakhstan and eastern Kyrgyzstan, and deficits will emerge in Turkmenistan and Uzbekistan.

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

South Asia

The 12-month forecast through July 2021 indicates widespread, water surpluses in many regions of India and in Bangladesh, Nepal, and Pakistan.

In India, surpluses will be widespread in the west and the Deccan Plateau, extending from Gujarat through Maharashtra, Goa, Karnataka, Telangana, Andhra Pradesh, and into Kerala. Surpluses will be exceptional from Mumbai through Karnataka and in Telangana, and extreme in Gujarat. Surpluses are also forecast for Bihar, Jharkhand, and Jammu and Kashmir.



Based on observed data through October 2020 and forecasts through July 2021

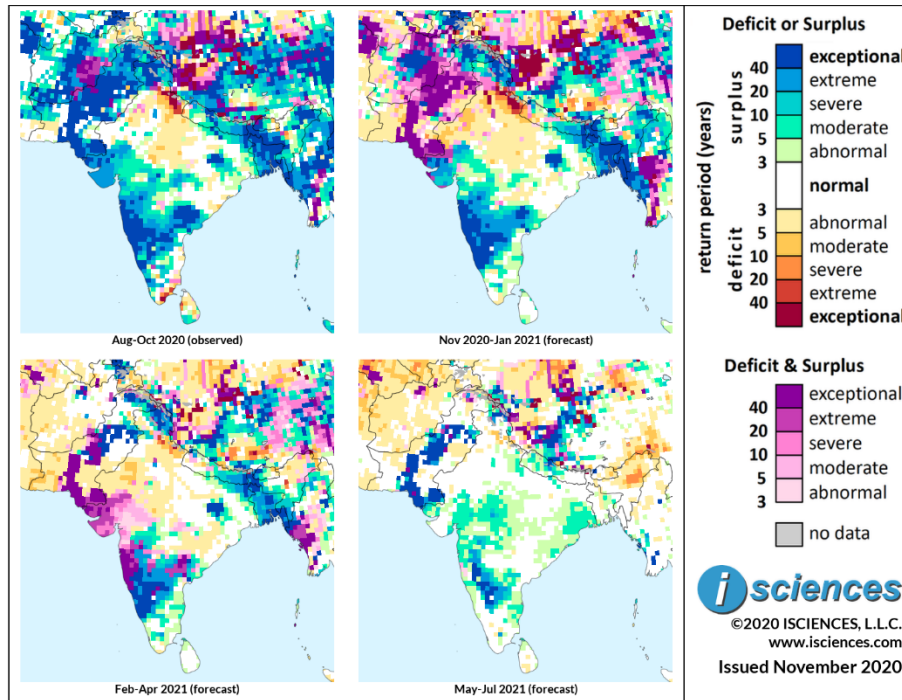
Deficits of varying intensity are forecast from Himachal Pradesh in the north reaching south into Madhya Pradesh, and in a pocket of southern India at the tip of Tamil Nadu. India's Far Northeast can expect mixed conditions.

Surplus conditions will dominate all of Bangladesh with extreme to exceptional anomalies in most regions. In Nepal, surpluses are expected in much of the country, severe in Kathmandu and exceptional along the Gandak River through the center of the nation. Exceptional anomalies will prevail in much of the Indus River Basin in Pakistan; surpluses of lesser intensity are forecast in the north.

In Afghanistan, moderate deficits are forecast in the Hindu Kush and in the west surrounding Herat. Conditions of both deficit and surplus (pink/purple) are forecast in the southeast from the Helmand River to the Pakistan border, and surrounding Mazar-e-Sharif in the north.

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

ISciences Water Anomalies Forecast
South Asia: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

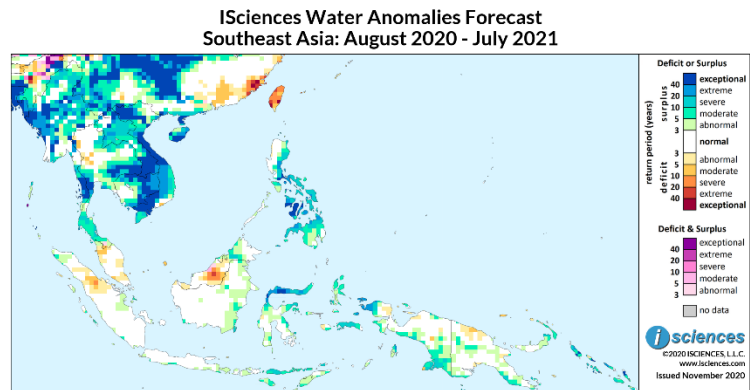
The forecast through January 2021 indicates transitional conditions in Pakistan and Afghanistan, but intense surpluses will persist in northern Pakistan and in a large block of Afghanistan encompassing the upper regions of the Harirud and Helmand River Watersheds. In India, surpluses will persist in a distribution pattern much like that of the prior three months, but the extent of exceptional anomalies will shrink in Telangana and increase in Karnataka. Moderate deficits will emerge in India's northwest and exceptional deficits will persist in Uttarakhand. Surpluses and transitional conditions are forecast in Jammu and Kashmir in the north and Gujarat in the west. Intense surpluses will persist in Bangladesh, western Bhutan, and eastern Nepal. Surpluses on the Gandak River will downgrade, and deficits will emerge in western Nepal. Sri Lanka will return to near-normal conditions.

From February through April 2021, transitional conditions are forecast in India from Gujarat through Goa with surpluses persisting in much of the Deccan Plateau, Karnataka, Jharkhand, and Jammu and Kashmir. Deficits will downgrade in the northwest and Uttarakhand. Conditions will normalize in much of Afghanistan and parts of Pakistan, but exceptional surpluses will re-emerge in Pakistan from the Ravi River near Lahore reaching west past the Indus River. Surpluses will persist in Bangladesh, eastern Nepal, and western Bhutan.

The forecast for the final months – May through July 2021 – indicates that surpluses will increase in Pakistan; re-emerge in western India while persisting in the Deccan Plateau and emerging in West Bengal; retreat from east Nepal and emerge in the west; and retreat from Bangladesh. Deficits in northwestern India will nearly disappear but severe deficits will emerge in the Far Northeast. Please note that WSIM forecast skill declines with longer lead times.

Southeast Asia and the Pacific

The 12-month forecast through July 2021 indicates surpluses in many regions of Southeast Asia. Anomalies will be particularly widespread and intense in Vietnam with exceptional surpluses in Vietnam’s narrow neck, extreme surpluses in the Central Highlands, and moderate to exceptional surpluses in the Mekong Delta and in the far north.



Based on observed data through October 2020 and forecasts through July 2021

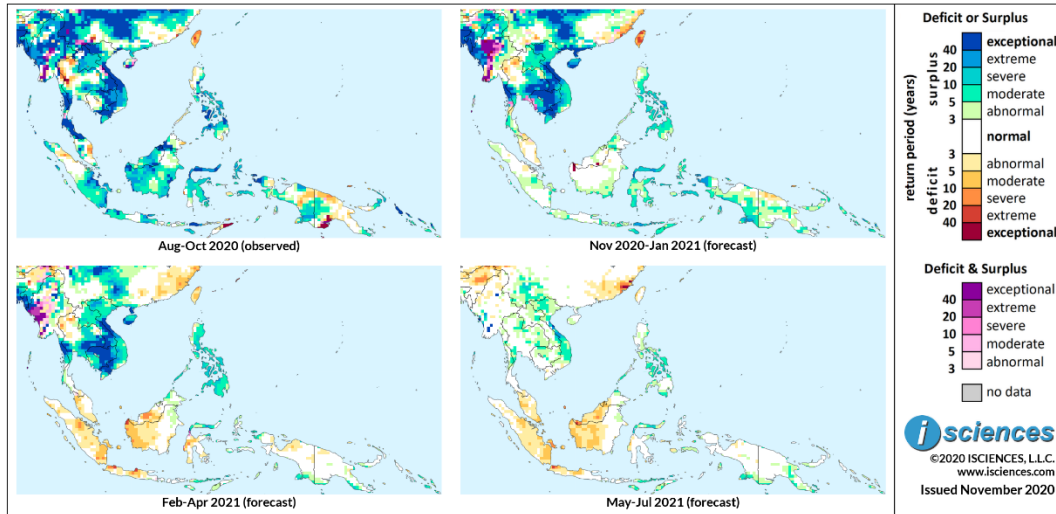
In Laos, surpluses are expected to be severe in the north and exceptional in the south. Intense surpluses are forecast for many parts of Cambodia and will be particularly widespread in the east. Surpluses of varying intensity, including exceptional, are forecast for eastern and Peninsular Thailand; some moderate deficits are expected in pockets of the west. Myanmar, too, can expect widespread surpluses, and anomalies will be extreme to exceptional in many small pockets throughout the country but will be particularly pervasive west of the Irrawaddy River.

Severe deficits are forecast in Sarawak in Malaysian Borneo, while moderate surpluses are expected east of Brunei. A few pockets of moderate deficit are forecast in Peninsular Malaysia and northeastern Sumatra. Pockets of surplus are expected throughout Indonesia including northern and eastern Sulawesi, the Lesser Sunda and Maluku Islands, and pockets in New Guinea. Anomalies will be intense in northern Sulawesi and the western end of the Bird’s Head Peninsula in Papua, Indonesia.

Surpluses are also forecast for many areas of the Philippines and anomalies will be severe to exceptional in the central Philippines.

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

ISciences Water Anomalies Forecast
Southeast Asia: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates widespread, intense surpluses in many regions of Southeast Asia. Surpluses will dominate Vietnam, Cambodia, and Laos and will include exceptional anomalies. In Thailand, surpluses are forecast in the east and south; pockets of deficit are expected in the north. Myanmar can expect intense surpluses in the southwest, surpluses of lesser intensity in the north and east, and transitional conditions in the center of the nation and along the Irrawaddy River. Surpluses are forecast in the Philippines, Sulawesi, the Lesser Sunda and Maluku Islands, and New Guinea. Anomalies will be extreme in the Bird's Head Peninsula of New Guinea and Flores Island, and severe in the central Philippines. Conditions will be primarily normal in Malaysia, Sumatra, Java, and Borneo with some pockets of surplus in all those regions and a few small, isolated pockets of deficit in Borneo. Deficits will shrink in New Guinea with moderate deficits persisting on its northern shore, and will disappear in East Timor, transitioning to surplus.

From February through April 2021, widespread surpluses will persist in Vietnam, Laos, Cambodia, and eastern and southern Thailand, with exceptional anomalies. Deficits in northern Thailand will shrink. In Myanmar, surpluses will shrink, and transitional conditions will increase in the west. Surpluses will increase in the Philippines, penetrating further into Luzon and Mindanao. Surpluses will shrink considerably in Indonesia, leaving scattered, moderate pockets. Deficits will emerge in Malaysia, Sumatra, Java, western Borneo, and central Sulawesi, primarily moderate but with some more intense pockets.

The forecast for the final months – May through July 2021 – indicates that surpluses will shrink and downgrade considerably in Southeast Asia, persisting mainly in Vietnam. Moderate surpluses are forecast for the central Philippines and pockets in eastern Indonesia and New Guinea. Moderate deficits will persist in Malaysia and western Indonesia.

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

East Asia

The 12-month forecast for East Asia through July 2021 indicates widespread, intense surpluses in the Yellow (Huang He) and Yangtze River Basins. Conditions will include exceptional anomalies in Gansu and much of the Ordos Loop in the Yellow River Basin, and severe to extreme surpluses in the lower and middle areas of the basin.

In the Yangtze region, exceptional surpluses will dominate much of the path of the river itself and many regions in the river's upper basin, dipping south into the Pearl River Basin between the Hongshui and Rong tributaries. Between the Yellow and the Yangtze, moderate to extreme surpluses are expected.

Northeast China can expect widespread extreme to exceptional surpluses, and surpluses are expected on the Liaodong Peninsula in the northern Bohai Sea reaching well into Liaoning Province.

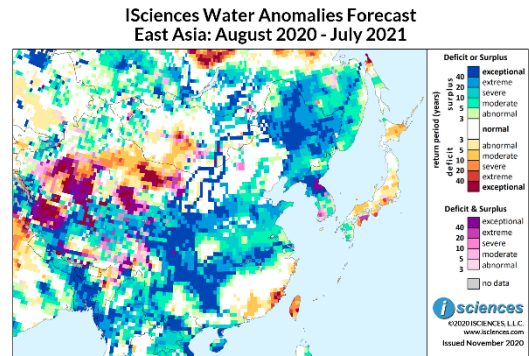
In southern and southeastern China, nearly normal conditions are forecast but intense deficits are expected in coastal Fujian and Taiwan, and moderate deficits in northern Guangdong. Southern Guangdong can expect intense surpluses as can nearby Hainan. Surpluses are also forecast in Yunnan.

In Tibet (Xizang), intense deficits are forecast in the west, and surpluses or transitional conditions in the remainder of its extent. In China's vast northwest, surpluses are expected in northern Xinjiang Province, intense deficits and transitional conditions in the Taklimakan Desert, and moderate to severe deficits in the northeastern region of the province leading to exceptional deficits in northern Gansu.

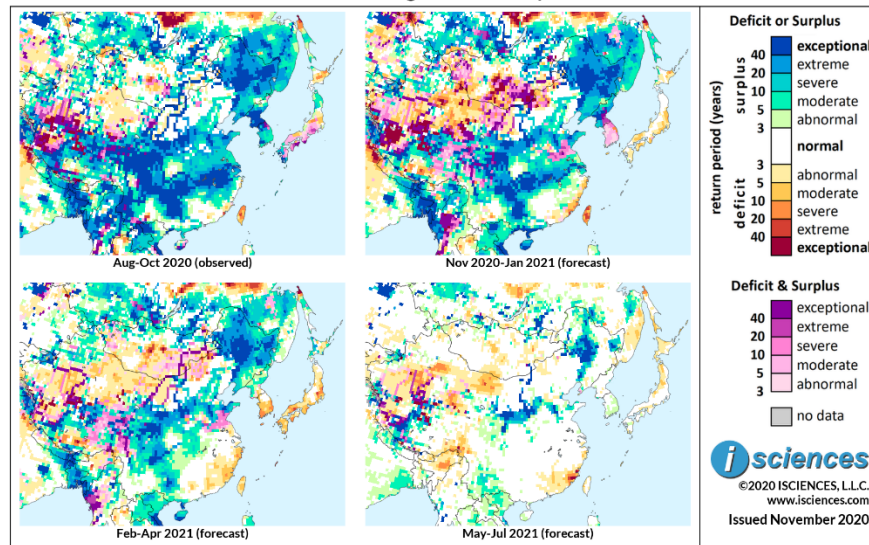
Moderate deficits are forecast in the south-central region of Mongolia, reaching greater intensity in the center. Surpluses are forecast in the nation's eastern and western thirds. Intense surpluses and transitional conditions are expected in North Korea, and moderate surpluses along with transitions in South Korea.

In Japan, deficits are predicted for Hokkaido and pockets of central and southern Honshu and Shikoku. Moderate surpluses are forecast for Kyushu.

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



ISciences Water Anomalies Forecast
East Asia: August 2020 - July 2021



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates that surpluses will remain widespread in the Yellow and Yangtze River Watersheds. However, the overall extent of exceptional anomalies will shrink somewhat, as will the extent of anomalies south of the Yangtze. Exceptional surpluses will persist between the Hongshui and Rong Rivers, tributaries of the Pearl River in the south. Surpluses will remain widespread and intense in Northeast China and will increase in southern China in Guangxi, coastal Guangdong, and Hainan. Deficits will increase in northwestern China in Xinjiang and northern Gansu, and also in coastal southeastern China, and will intensify in Taiwan. Deficits will increase substantially in southern Mongolia though many areas will be in transition. On the Korean Peninsula, surpluses will persist in the north, remaining intense as areas of transition increase. Transitional conditions are forecast in the south. Surpluses will retreat from Japan, and many pockets of moderate deficit are forecast.

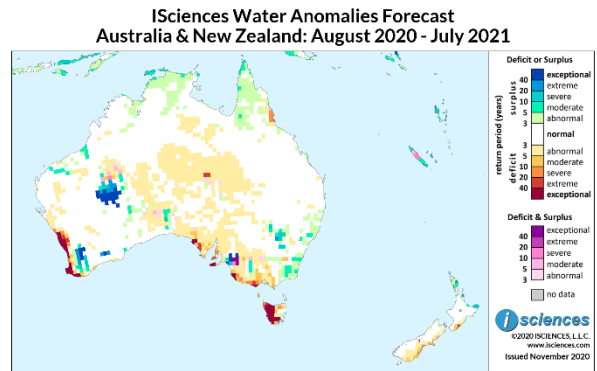
From February through April 2021, surpluses in the Yellow River Watershed will downgrade slightly and will shrink and downgrade in the Yangtze region, retreating from the Lower Yangtze Basin. In China's Northeast, however, surpluses will remain widespread and intense though the extent of exceptional anomalies will shrink slightly. Deficits will downgrade in Xinjiang and northern Gansu, becoming mild overall. Moderate deficits will increase in coastal southeastern China and deficits in Taiwan will downgrade, becoming moderate. Deficits are expected to emerge in South Korea while surpluses in North Korea shrink and moderate. In Japan, moderate deficits will persist, intensifying in some small pockets of Honshu. Surpluses will increase in Hokkaido as deficits shrink.

The forecast for the final three months – May through July 2021 – indicates normal conditions in many parts of the region with intense surpluses in the Yellow River Watershed through the base of the Ordos Loop, and in Northeast China. Moderate surpluses are forecast in Yunnan, and surpluses of greater intensity in western Tibet. Deficits are forecast in Fujian, eastern Tibet, and northwestern China.

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

Australia & New Zealand

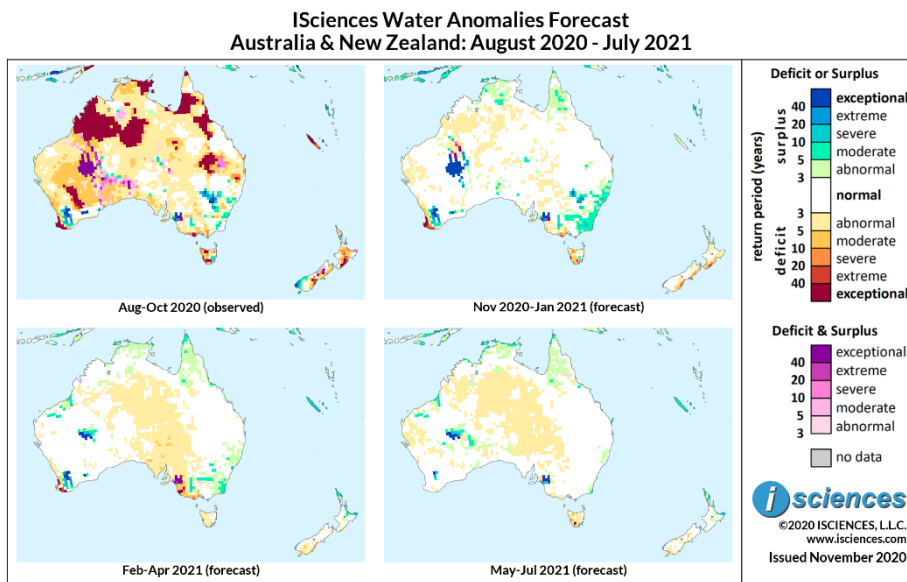
The 12-month forecast through July 2021 indicates exceptional deficits in western Tasmania and deficits of varying intensity in pockets along Australia’s southern shore from the Eyre Peninsula in South Australia through Kangaroo Island to Melbourne. Anomalies will be exceptional on Kangaroo Island. At the mouth of the Murray River, however, surpluses and transitional conditions are expected. Pockets of surplus are forecast west of Dubbo in the central Murray-Darling Basin and near the southeast coast in Canberra and the Australian Alps.



Based on observed data through October 2020 and forecasts through July 2021

In the nation’s west, exceptional deficits are forecast along the southwestern shore from Geraldton through Perth and the Lower Blackwood River region in the tip of Western Australia to Albany. Surpluses are forecast from the Upper Blackwood River region into the southern Avon River Basin. Widespread, exceptional surpluses are expected spanning the western edge of the Gibson Desert along with some transitional conditions. Northwest of the Gibson, moderate surpluses are forecast in the Hamersley Range and along Eighty Mile Beach. Some surpluses will pock Australia’s far northern coastline. Severe deficits are expected in northeast Queensland near Cairns.

In New Zealand, surpluses are expected north of Auckland and on the points framing the Bay of Plenty. Deficits are forecast from northeast of Wellington to Hawke’s Bay. On South Island, some deficits are expected along the east coast between Christchurch and Dunedin. Surpluses and transitional conditions are forecast in New Caledonia. The 3-month maps (below) show the evolving conditions in greater detail.



Based on observed data through October 2020 and forecasts through July 2021

The forecast through January 2021 indicates that much of Australia will return to near-normal conditions as deficits retreat. Deficits will persist along the nation's southwestern coast, of moderate intensity near Perth but exceptional to the south near Busselton. Surpluses are expected nearby in the southern portion of the Avon River Basin. Exceptional surpluses will re-emerge spanning the western edge of the Gibson Desert in Western Australia with less intense anomalies and transitional conditions creating paths leading both north and south.

In southeastern Australia, moderate surpluses will increase in a wide path along the coast from south of Brisbane through Sydney, Canberra, and the Australian Alps. Surpluses will persist west of Dubbo in the central Murray-Darling Basin and will increase in the Riverina area. At the mouth of the Murray, intense surpluses and transitional conditions are forecast. Deficits, primarily moderate, are forecast along the southern coast west of Melbourne and in southern and western Tasmania. In Australia's northern reaches, some pockets of moderate surplus are forecast in Top End and the Cape York Peninsula.

In New Zealand, anomalies will shrink considerably, leaving deficits along the eastern coasts from Hawke's Bay in the north to Dunedin in the south. Conditions in New Caledonia will become nearly normal.

From February through April 2021, surpluses in southeastern Australia will shrink considerably, leaving moderate surpluses south of Canberra and in southern Riverina. Deficits will intensify in a small pocket of the mainland coast spanning the border of South Australia and Victoria but will nearly disappear in Tasmania. Transitional conditions are expected near the mouth of the Murray. In Western Australia, deficits in the southwestern tip will shrink but remain intense, and surpluses will persist in the southern portion of the Avon River Basin. Surpluses near the Gibson Desert will shrink, and moderate surpluses will emerge to the northwest in the Hamersley Range and Eighty Mile Beach.

Nearly normal conditions are expected in New Zealand with some surpluses in the north and mild deficits in the south. Severe surpluses are forecast in New Caledonia.

The forecast for the final months – May through July 2021 – indicates nearly normal conditions for much of the region with surpluses at the mouth of the Murray River and a few persistent pockets in Western Australia. Intense deficits will emerge around Lakes Gordon and Pedder in Tasmania. Surpluses are forecast in New Caledonia and far northern New Zealand.

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