

Dataset ID	Dataset Name	Description	New from Mar 2021 to July 2021
329	10 day weather forecast (ECMWF)	ECMWF parameter name 2t; 10-day ahead weather forecast. Timestamps in this dataset correspond to the valid time of the forecast; that is, the timestamp the forecast is for. All layers in this dataset have a dimension called "horizon", indicating the difference between the issue and valid time in hours. Moreover, the dataset contains the results of the 0:00 UTC forecast run. One thus obtains the forecast for, say 15:00 UTC by querying for 15:00 UTC with "horizon" 15. Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
326	10 day weather forecast (ECMWF) (coarse)	ECMWF parameter name mx2t6; 10-day ahead weather forecasts for select parameters. The daily aggregate forecasts in this dataset are derived from the ECMWF HRES forecast. Timestamps in this dataset correspond to the valid time of the forecast; that is, the timestamp the forecast is for. All layers in this dataset have a dimension called "\"horizon\"", indicating the difference between the issue and valid time in hours. Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
144	10 day weather forecast (ECMWF) (daily)	Daily aggregated maximum temperature in GMT time.; Medium range (up to ten days ahead) weather forecast from the European Center for Medium-Range Weather Forecasts (ECMWF). In contrast to dataset 26, the data in which comes from the same source, this dataset contains the complete forecast history. Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
26	10 day weather forecast (ECMWF) (latest)	Temperature at 2 meters above ground; A numerical weather prediction system, run twice daily, designed to produce state-of-the-art medium (10 days) global forecasts. In contrast to dataset 144, the data in which stems from the same source, this dataset only contains the latest forecast. Specifically, this dataset contains data from the 0:00 UTC run. If the complete forecast history or data from the 12:00 UTC run are of interest, one should use 144. Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
14	10 m res elevation (US NED)	USA Digital Elevation Map; USGS National Elevation Dataset (NED). Raster-based land elevation data for the conterminous United States, Alaska, Hawaii, and territorial islands, providing basic elevation information for earth science studies and mapping applications.	
5	16 day 250 m res imagery (NASA MODIS Aqua)	MODIS Aqua 16 day normalized vegetation index; Images from the Moderate Resolution Imaging Spectrometer (MODIS) instrument aboard the NASA satellite Aqua, which, along with the satellite Terra, views the entire Earth surface every 1 to 2 days. Generally, MODIS images in 36 different spectral bands (wavelength intervals) and provides spatial resolutions of 250m, 500m, or 1,000m. Contains global images from Aqua MODIS spectral bands 1 (red), 2 (near-infrared), 3 (blue), and 7 (mid-infrared), plus the Normalized Difference Vegetation Index (NDVI) and an NDVI quality assessment. The images are 1200x1200 km in the form of 4800 rows and 4800 columns of 16-bit signed integer. The images, called Aqua 13 Q1, come once every 16 days. For each pixel, the best value is selected from the 16-day period to minimize cloud cover and viewing angle and maximize NDVI. NDVI is a standardized measure of live green vegetation made by ratioing the difference between the NIR and red spectral bands to the sum of these bands. The ratio makes this index independent of actual brightness. It shows vegetation because leaves reflect nearly all of the incident NIR while absorbing the red in chlorophyll.	
7	16 day 250 m res imagery (NASA MODIS Terra)	MODIS Terra 16 Day Normalized Vegetation Index; Images from the Moderate Resolution Imaging Spectrometer (MODIS) instrument aboard the NASA satellite Terra, which, along with the satellite Aqua, views the entire Earth surface every 1 to 2 days. Generally, MODIS images in 36 different spectral bands (wavelength intervals) and provides spatial resolutions of 250m, 500m, or 1,000m. Contains global images from Terra MODIS spectral bands 1 (red), 2 (near-infrared), 3 (blue), and 7 (mid-infrared), plus the Normalized Difference Vegetation Index (NDVI) and an NDVI quality assessment. The images are 1200x1200 km in the form of 4800 rows and 4800 columns of 16-bit signed integer. The images, called Terra 13 Q1, come once every 16 days. For each pixel, the best value is selected from the 16-day period to minimize cloud cover and viewing angle and maximize NDVI. NDVI is a standardized measure of live green vegetation made by ratioing the difference between the NIR and red spectral bands to the sum of these bands. The ratio makes this index independent of actual brightness. It shows vegetation because leaves reflect nearly all of the incident NIR while absorbing the red in chlorophyll.	

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330	16 day weather forecast (GFS)	Medium range (up to 16 days ahead) weather forecast issued by NCEPs Global Forecast System (GFS). The Global Forecast System (GFS) is a global numerical weather prediction system containing a global computer model and variational analysis run by the United States National Weather Service (NWS). The mathematical model is run four times a day, and produces forecasts for up to 16 days in advance, but with decreased spatial resolution after 10 days. This dataset currently contains forecasts from the daily 18:00 UTC run. Moreover, timestamps generally correspond to the valid time of the forecast; that is, the timestamp the forecast is for. All layers in this dataset have a dimension called "horizon", indicating the difference between the issue and valid time in hours. Thus, one obtains a forecast for 0:00 UTC issued at 18:00 the day before by querying 0:00 with "horizon" 6.	
145	16 day weather forecast (GFS) (daily)	GFS Forecast Daily Maximum Temperature 0.5 degree grid with issuetime and horizon as dimensions; Medium range (up to 16 days ahead) weather forecast issued by NCEPs Global Forecast System (GFS).	
16	16 day weather forecast (GFS) (latest predictions)	Temperature at 2 m above ground.; The Global Forecast System (GFS) is a global numerical weather prediction system containing a global computer model and variational analysis run by the United States National Weather Service (NWS). The mathematical model is run four times a day, and produces forecasts for up to 16 days in advance, but with decreased spatial resolution after 10 days.	
254	250 m res elevation (GMTED 2010)	A global elevation model comprising a series of statistics such as mean, minimum or maximum over a set input data sources. The primary data source for GMTED is the SRTM (see PAIRS data set 249). Gaps in the SRTM were filled using: non-SRTM DTED, Canadian Elevation Data (CDED), Satellite Pour l'Observation de la Terre (SPOT 5) Reference3D, National Elevation Dataset (NED) for the continental United States and Alaska, GEODATA 9 second digital elevation model (DEM) for Australia, an Antarctica satellite radar and laser altimeter DEM and a Greenland satellite radar altimeter DEM. Using these data sets, voids in the SRTM data were filled using the Delta Surface Fill (DSF) method developed by NGA (Grohman and others, 2006). The DSF method replaces the void with fill source posts that are adjusted to the SRTM values found at the void interface. This process causes the fill to more closely follow the trend of the original SRTM surface while retaining the useful characteristics from the source fill data. [Adapted from the GMTED2010 Technical Documentation]	
167	30 m res elevation (JAXA ALOS 3D)	JAXA global elevation data.; Global elevation data with a vertical accuracy of 5 meters (1 standard deviation). The data set contains three layers: The actual elevation data, a quality band and a layer indicating any auxiliary data source that has been used to fill missing value.	
249	30 m res elevation (NASA SRTM)	Global elevation data from the Shuttle Radar Topography Mission (SRTM). The datasets result from a collaborative effort by NASA and the National Geospatial-Intelligence Agency, as well as the participation of the German and Italian space agencies. Together, this international space collaboration generated a near-global digital elevation model of the Earth using radar interferometry. The 'targeted landmass' consisted of all land between 60° North and 56° South latitude, which comprises almost exactly 80% of the Earth's total landmass. The coverage reached somewhat further north than south because the side-looking radar looked toward the north side of the Shuttle. NASA Version 3.0 SRTM (SRTM Plus) data includes topographic data from non-SRTM sources to fill the gaps (voids) in earlier versions of SRTM data. [Source: SRTM User Guide, edited]	
124	46 day weather forecast (ECMWF)	Snow Albedo. ECMWF parameter name: asn.; Long range forecast (up to 46 days ahead) from ECMWF's Ensemble Prediction System. ECMWF Ensemble Prediction System (EPS) creates 51 forecasts - a control forecast as well as 50 perturbations. The data set contains the control forecast up to 46 days ahead (1104 hours). Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
12	60 hour weather forecast North America (NAM)	NAM USA Temperature at 2m Above Ground; NOAA National Center for Environmental Information North American Mesoscale Forecast System (NAM). A numerical weather prediction system designed for short-term forecasting with finer detail than other forecast models. The model is run four times a day out to 84 hours in advance with 12 km horizontal resolution and three-hour temporal resolution.	

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6	8 day 250 m res imagery (NASA MODIS Aqua)	MODIS Aqua 8 Day Spectral Image of Band 1 (red); Images from the Moderate Resolution Imaging Spectrometer (MODIS) instrument aboard the NASA satellite Aqua, which, along with the satellite Terra, views the entire Earth surface every 1 to 2 days. Generally, MODIS images in 36 different spectral bands (wavelength intervals) and provides spatial resolutions of 250m, 500m, or 1,000m. Contains global images from Aqua MODIS spectral bands 1 (red) and 2 (near-infrared) at 250 m resolution, corrected for atmospheric conditions such as gasses, aerosols, and Rayleigh scattering. The images are 1200x1200 km in the form of 4800 rows and 4800 columns of 16-bit signed integer. Also included is a Surface Reflectance Quality Control image. These images, called Aqua 09 Q1, come once every 8 days. For each pixel, the best value is selected from the 8-day period to minimize cloud cover and optimize other things like solar zenith.	
8	8 day 250 m res imagery (NASA MODIS Terra)	MODIS Terra 8 Day Spectral Image of Band 1 (red); Images from the Moderate Resolution Imaging Spectrometer (MODIS) instrument aboard the NASA satellite Terra, which, along with the satellite Aqua, views the entire Earth surface every 1 to 2 days. Generally, MODIS images in 36 different spectral bands (wavelength intervals) and provides spatial resolutions of 250m, 500m, or 1,000m. Contains global images from Terra MODIS spectral bands 1 (red) and 2 (near-infrared) at 250 m resolution, corrected for atmospheric conditions such as gasses, aerosols, and Rayleigh scattering. The images are 1200x1200 km in the form of 4800 rows and 4800 columns of 16-bit signed integer. Also included is a Surface Reflectance Quality Control image. These images, called Terra 09 Q1, come once every 8 days. For each pixel, the best value is selected from the 8-day period to minimize cloudcover and optimize other things like solar zenith.	
277	Atmospheric weather (COSMIC)	GPS Radio Occultation (GPS-RO) data from the COSMIC mission. (Constellation Observing System for Meteorology, Ionosphere and Climate) Also known as FORMOSAT-3 and COSMIC-1. The COSMIC mission uses the refraction of the GPS signal when traversing the atmosphere between signals to obtain information on the state of the atmosphere. For practical purposes, one might think of the dataset as a number of weather stations that are floating randomly at high altitude.	
104	Atmospheric weather (ECMWF)	Potential vorticity; ECMWF global atmospheric reanalysis from 1979, continuously updated up to 1-2 months before real time. The spatial resolution is about 80km. The product is updated once a month usually. This gridded data products include a large variety of 3-hourly surface parameters, and some 12 hourly accumulated parameters. A reanalysis is not a measurement. Instead, the technique combines observations from weather stations, balloons or satellites with the computational technique of numerical weather prediction in order to model the state of the atmosphere (i.e. describe the weather) at some point in the past. The data is especially useful to understand weather phenomena over areas with few or no weather stations or other sources of measurements. Note: ECMWF has announced to cease production of ECMWF Interim with the release of August 2019 data. Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
306	Atmospheric weather (ERA5)	Gravitational potential energy of a unit mass relative to mean sea level.; A global reanalysis data set produced by ECMWF, the European Centre for Medium-Range Weather Forecasts. The dataset contains the "pressure level" data. That is, data that is not at surface level but at different altitudes, where height (in the atmosphere) is measured in hPa. Users interested in surface level data should use dataset 190. ERA5 is the direct successor to the ERA Interim reanalysis. It provides global, hourly data at a resolution of 0.25 by 0.25 degrees. As any reanalysis product, ERA5 combines observed data with the output of meteorological models. Note that there are actually two versions of ERA5 data. Initial data is referred to as ERA5T and available in near real time. I.e., ERA5T data lags real time by about three days. About three months later, the final version of the data is released. This is the actual ERA5 data. This dataset contains both ERA5 and ERA5T data. With the latter being uploaded initially and overwritten once the former is available. As far as currently known, differences between the two versions are negligible.	

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269	Bathymetry (GEBCO)	A global terrain model for ocean and land at 15 arc-second intervals. The GEBCO_2019 Grid was the first global bathymetric grid released by the General Bathymetric Chart of the Oceans (GEBCO) that had been developed through the Nippon Foundation-GEBCO Seabed 2030 Project. This is a collaborative project between the Nippon Foundation of Japan and GEBCO. The Seabed 2030 Project aims to bring together all available bathymetric data to produce the definitive map of the world ocean floor and make it available to all. The Nippon Foundation of Japan is a non-profit philanthropic organisation active around the world. GEBCO is an international group of mapping experts developing a range of bathymetric data sets and data products, operating under the joint auspices of the International Hydrographic Organization (IHO) and UNESCO's Intergovernmental Oceanographic Commission (IOC). The GEBCO_2019 product provides global coverage, spanning 89 deg 59' 52.5"N, 179° 59' 52.5"W to 89 deg 59' 52.5"S, 179 deg 59' 52.5"E on a 15 arc-second grid. It consists of 43200 rows x 86400 columns, giving 3,732,480,000 data points. The data values are pixel-centre registered i.e. they refer to elevations at the centre of grid cells.	
369	Buoy Data Wave Summary	Swell height (SWH) is the vertical distance (meters) between any swell crest and the succeeding swell wave trough.; Precise wave conditions around bouys belonging to NOAA's buoy network. Local measurements of wave attributes and their spectral decomposition into swell and wind wave components. These attributes are period, height, and direction, respectively.	*
384	Bureau of Labor Statistics	Number of people able to work.; Economic data of the U.S. Bureau of Labor Statistics regarding employment, occupation, and overall labor market activity in the United States. The U.S. Bureau of Labor Statistics (BLS) produces periodically macroeconomic datasets for states and counties of the United States which relate to the national labor market. Among others, the data represent the economic activity by providing insights about key indicators of the labor market such as (un-)employment, wages, occupation, and wages.	
297	Burned area (MODIS)	Indicates (with a value of 1) whether an area was burned on a given day.; A MODIS-based dataset indicating burned areas and burn date uncertainty. This dataset at present includes two layers. The first layer, "Burned area," indicates whether an area was burned on a given day. A value of one is assigned to an area that was burned and to the beginning of the burn day (i.e., at time 00:00:00). Note that this is structured differently than the "burn date" layer in the original dataset which specifies the day (1-366) of the burn and assigns these values to the beginning of the first day of each month. The burn date is an estimate from an algorithm which detects rapid changes in infrared and visible surface reflectance imagery. The uncertainty, in days, of this estimate is given in the second layer, "Uncertainty."	
50	Census USA (raster data)	Population Density of USA 48 States; An authoritative source of statistical information about the populace of the United States. Dataset coverage includes population, economy, business, income and poverty, families and living arrangements, education, employment, health and housing.	
101	Census USA (vector data)	Population count; An authoritative source of statistical information about the populace of the United States. Dataset coverage includes population, economy, business, income and poverty, families and living arrangements, education, employment, health and housing. The data is aggregated to administration districts, such as zip code, or county.	
348	Controlled airspace (FAA UAS)	Altitudes at which UAS, operating under the Small UAS Rule (14 CFR 107), can be authorized to fly within the surface areas of controlled airspace.; Permissible altitude of unmanned aircraft systems (drones) according to the FAA across the United States of America. UAS Facility Map is designed to identify permissible altitudes (above ground level) at which UAS, operating under the Small UAS Rule (14 CFR 107), can be authorized to fly within the surface areas of controlled airspace. No data entries indicate no FAA limitation regarding the UAV altitude.	
157	Current and historical weather (IBM TWC)	Sudden and temporary variations of the average Wind Speed. Always shows the maximum wind gust speed recorded during the observation period. Unit: m/s; Data layers from The Weather Company, an IBM Business. 4km landmass and coastal waterways grid; hourly data back to July 2015. Special Cases are: Driving Difficulty Index only from 2015-12-15 17Z, Pressure Mean Sea Level only from 2017-07-17 15Z, Wind Direction from 2017-07-17 15Z	

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94	Daily 250 m res imagery (NASA MODIS)	MODIS Daily Terra Satellite Spectral Image of Band 1 (red); Daily Images at 250 m resolution from the Moderate Resolution Imaging Spectrometer (MODIS) instrument aboard the NASA satellites Aqua and Terra. This is Level 2 gridded data (L2G), so bands 1 (red) and 2 (near-infrared) are single-time measurements put on a regular Earth grid. They are corrected for atmospheric conditions such as gasses, aerosols, and Rayleigh scattering. The raw NDVI is calculated from the L2G data in bands 1 and 2. In general, Level 2 data are raw satellite data that have not yet been placed on a regular Earth grid system but which have been radiometrically calibrated and corrected for the atmosphere, thereby representing values at ground level. The Level 3 processing step puts the L2 data on a regular Earth grid, combining, interpolating, and averaging the L2 measurements for each L3 grid point. The disadvantage with L3 is that measurements from different times are mixed in each grid point. Level 2 gridded data (L2G) in the present files avoid this time mixture by taking only single measurements and placing them on the L3 grid, even if some grid cells are incomplete. The images are 1200x1200 km in the form of 4800 rows and 4800 columns of 16-bit signed integer.	
248	Daily 500 m res imagery (NASA MODIS Aqua)	Blue filter (459-479 nm); Images from the Moderate Resolution Imaging Spectrometer (MODIS) instrument aboard the NASA satellite Aqua, which, along with the satellite Terra, views the entire Earth surface every 1 to 2 days. MOD09GA consists of earth surface reflection images in wavelength bands 1 through 7 and a resolution of 500 m, corrected for the atmosphere. There are also nine wavelength bands with 1 km resolution. These images are used for many other MODIS data products.	
247	Daily 500 m res imagery (NASA MODIS Terra)	Blue filter (459-479 nm); Images from the Moderate Resolution Imaging Spectrometer (MODIS) instrument aboard the NASA satellite Terra, which, along with the satellite Aqua, views the entire Earth surface every 1 to 2 days. MOD09GA consists of earth surface reflection images in wavelength bands 1 through 7 and a resolution of 500 m, corrected for the atmosphere. There are also nine wavelength bands with 1 km resolution. These images are used for many other MODIS data products.	
122	Daily global weather (NOAA)	GFS analysis based daily soil water volume fraction layer 1 (0-0.1 m depth); Real time analysis data from NOAA's GDAS system resampled by the IBM PAIRS team to daily aggregates. "The Global Data Assimilation System (GDAS) is the system used by the National Center for Environmental Prediction (NCEP) Global Forecast System (GFS) model to place observations into a gridded model space for the purpose of starting, or initializing, weather forecasts with observed data. GDAS adds the following types of observations to a gridded, 3-D, model space: surface observations, balloon data, wind profiler data, aircraft reports, buoy observations, radar observations, and satellite observations." [NOAA website] GDAS data is issued 4 times a day in 0.25 degree spatial resolution.	
9	Daily US weather (PRISM)	Daily precipitation for the United States.; PRISM Climate Pattern Model. Spatial climate datasets, derived from a network of measurement stations, a terrain elevation model, and other spatial data, used to observe short- and long-term climate patterns. Produced by the PRISM Climate Group in partnership with the Northwest Alliance for Computational Science & Engineering, both based at Oregon State University. The data is issued in 3 versions of increasing quality. These are issued on an irregular schedule. Newer, better, data overwrites the previous versions.	
398	Epidemiology Covid 19	Confirmed Covid-19 cases.; Cases by local, state, and country level as provided by various Health departments.	
431	Epidemiology Covid 19 (impact study)	Regional aggregates for each answer to a given question.; Restricted Use - COVID 19; Representative survey involving 157 questions covering social, physical, economical and demographic aspects of the Covid-19 pandemic. In processing this data, IBM generated regional aggregates from the raw data. In doing so, the columns [INC_BANNER, RACE2_BANNER, PHYS11_TEMP, MAIL50, LGBT, MARITAL, P_OCCUPY2, ECON4, HH_BANNER, RACE1_BANNER, P_DENSE] were dropped from the raw data. The rationale here being that there are other, more accurate data sources for state-wise aggregates of these attributes. (The situation is different if one studies the un-aggregated data. In which case these attributes are highly relevant.) For aggregation, IBM used the regional and national population weights respectively. For the regional table, samples with missing 'P_GEO' are dropped before aggregation. For the national table, all samples were aggregated.	
303	Example data	Data for PAIRS tutorials and examples. The data are for pure testing of the PAIRS platform as well as demonstration purposes, only. Neither tempo-spatial consistency nor frequent data update and ingestion can be assumed for the layers consolidated under this dataset.	

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473	GDFC Flood and Drought maps	Return period of pluvial event calculated from Standard Precipitation Index; Estimates of large-scale drought and flood risk derived from observed meteorological drivers and hydrological simulations. Products from the Global Drought and Flood Catalogue (GDFC) for 1950-2016, created by merging in situ and remote sensing datasets with land surface and hydrodynamic modelling to provide a continuous and consistent estimate of the terrestrial water cycle and its extremes. Global hazard maps are available in PAIRS for drought and fluvial events of different durations (from 1-3 months to 12 months+) calculated using two different methods: 3-month standardized precipitation index (SPI3) and soil moisture percentile (SMPct). Hazard maps are also available for fluvial risk, showing annual maximum inundation fraction of grid cells and annual maximum daily streamflow for event return periods of 5 to 500 years.	
350	Global climate (ERA5 derived)	The short name of this parameter (as used in the raw GRIB files) is 2t.; A climatology calculated from ERA5 reanalysis surface level data (PAIRS dataset 190). The climatology was calculated by the IBM PAIRS team from ERA5 data spanning 2010-2019. The methodology similar for that used in the ERA-interim climatology. See the linked references by Jung and Leutbecher as well as JanouÅjek. That is, a 61 day weighted rolling window with the weights decreasing linearly from their maximum value at the center of the window to zero at +/-30 days. This is in contrast to those references (and the ERA-interim climatology), where weights are determined by second-order polynomial.	
133	Global crop land	GFSAD1KCD data of 8 classes of crop dominance for nominal 2010 is derived from the map of the five dominant crops and the global irrigated and rainfed cropland area of the world.; Global land use. (Note: For a better visualization, the maximum value of the color scale has to be set to a single digit integer.)	
106	Global population (SEDAC)	Global Population Density; Global population density at 1 km spatial resolution. Distribution of human population (counts and densities) on a continuous global raster surface updated on local census data. "For GPWv4, population input data are collected at the most detailed spatial resolution available from the results of the 2010 round of Population and Housing Censuses, which occurred between 2005 and 2014. The input data are extrapolated to produce population estimates for the years 2000, 2005, 2010, 2015, and 2020." [Source: Product description]	
91	Global weather (ECMWF)	The short name of this parameter (as used in the raw GRIB files) is asn.; Historical weather data from ECMWF's Interim Reanalysis. A reanalysis is not a measurement. Instead, the technique combines observations from weather stations, balloons or satellites with the computational technique of numerical weather prediction in order to model the state of the atmosphere (i.e. describe the weather) at some point in the past. The data is especially useful to understand weather phenomena over areas with few or no weather stations or other sources of measurements. Note: ECMWF has announced to cease production of ECMWF Interim with the release of August 2019 data. Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
190	Global weather (ERA5)	The short name of this parameter (as used in the raw GRIB files) is 100u.; A global reanalysis data set produced by ECMWF, the European Centre for Medium-Range Weather Forecasts. ERA5 is the direct successor to the ERA Interim reanalysis. It provides global, hourly data at a resolution of 0.25 by 0.25 degrees. As any reanalysis product, ERA5 combines observed data with the output of meteorological models. Note that there are actually two versions of ERA5 data. Initial data is referred to as ERA5T and available in near real time. I.e., ERA5T data lags real time by about three days. About three months later, the final version of the data is released. This is the actual ERA5 data. This dataset contains both ERA5 and ERA5T data. With the latter being uploaded initially and overwritten once the former is available. As far as currently known, differences between the two versions are negligible. The dataset contains data for 1980, 1990, 2000, 2005 and from 2009 onwards.	
1020	Global weather (NOAA CPC)	Global weather analysis from NOAA's Climate Prediction Center.	

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177	High res imagery (ESA Sentinel 2)	Central wavelength 664.5/665.0 nm, bandwidth 38/39 nm respectively (Sentinel 2 A/B satellite).; Images from the European Space Agency Sentinel 2 satellite pair which view land surface regions in 13 spectral bands every 5 days or faster. Sentinel-2 is a set of two satellites in polar orbit 180 degrees apart. It monitors land surface and coastal waters every 5 days at the equator and more frequently at mid-latitudes. The coverage is between latitudes 56° south and 84° north. Images are in 13 spectral bands at various ground resolutions: 4 bands at 10 m, 6 at 20 m and 3 at 60 m; the orbital swath is 290 km wide. Level 2A (L2A) images are 100x100 km ortho-rectified and spatially registered on a global reference system; they are corrected for the atmosphere so they represent ground conditions. Currently PAIRS ingests Bands 4 (red), 8 (NIR) and SCL (Scene Classification). An NDVI layer, called "NDVI sh", is calculated from Bands 4 and 8. Tiles are ingested on request. Currently there is some coverage for tiles in USA, Brazil, India and the Netherlands for selected days in 2018 and 2019. Timestamps in this dataset are rounded down to 0:00 UTC from the Satellite's sensing time.	
176	High res imagery (ESA Sentinel 2) (TOA)	Central wavelength 664.5/665.0 nm, bandwidth 38/39 nm respectively (Sentinel 2 A/B satellite).; This dataset contains layers from the Level-1C product. Pixel values correspond to top of atmosphere (TOA) reflectances. Images from the European Space Agency Sentinel 2 satellite pair which view land surface regions in 13 spectral bands every 5 days or faster. Sentinel-2 is a set of two satellites in polar orbit 180 degrees apart. It monitors land surface and coastal waters every 5 days at the equator and more frequently at mid-latitudes. The coverage is between latitudes 56° south and 84° north. Images are in 13 spectral bands at various ground resolutions: 4 bands at 10 m, 6 at 20 m and 3 at 60 m; the orbital swath is 290 km wide. Level 1C (L1C) images are 100x100 km ortho-rectified and spatially registered on a global reference system; they represent conditions at the top of the atmosphere. Currently PAIRS ingests Bands 4 (red) and 8 (NIR). Tiles are ingested on request. Currently there is some coverage for tiles in USA, Brazil, India and the Netherlands for selected days in 2018 and 2019. Timestamps in this dataset are rounded down to 0:00 UTC from the Satellite's sensing time.	
273	High res imagery (NASA Landsat 8) (TOA)	Deep blue and violet band (433 - 453 nm) at 30 m resolution; Called coastal/aerosol band due to two main uses: imaging shallow water and tracking fine particles like dust and smoke.; High resolution imagery from NASA's Landsat 8 satellite. The dataset includes the level 1 products which provide top of atmosphere (TOA) reflectances.	
63	High resolution aerial imagery (USDA NAIP)	Red channel at 1 meter resolution.; High resolution (<1m) aerial imagery from the National Agriculture Imagery Program (NAIP) of USDA's Farm Service Agency (FSA). National Agriculture Imagery Program (NAIP) acquires aerial imagery during the agricultural growing seasons in the continental U.S. NAIP imagery is acquired at a one-meter ground sample distance (GSD) with a horizontal accuracy that matches within six meters of photo-identifiable ground control points, which are used during image inspection.	
97	Historical climate (Daymet 35 year averages)	Daymet 35 Years Average Daily Maximum Temperature; Weekly average of climate normal from 35 years of Daymet daily data. From 1981-2015, and stored as 2015 data (for temporal properties). e.g. 2015-01-01 data is the average of Jan 1 to Jan 7 each year from 1981-2015, and the result is stored as 2015-01-01 climate normal.	
131	Historical climate (ECMWF)	Climatology issued by the European Centre for Medium-Range Weather Forecasts (ECMWF). The climatology is derived from the ECMWF Interim Reanalysis. It is based on the 20 year period from 1989 to 2008. To calculate the climatology, ECMWF uses a 61 day weighted rolling window with the weights decreasing from their maximum value at the center of the window to zero at +-30 days. Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
11	Historical crop planting map (USA)	USA Crop Planting Map from USDA with 30m Resolution; Crop-specific land cover data. A dataset created annually for the conterminous United States showing what crops have been planted where. More formally, it is a raster, geo-referenced, crop-specific land cover dataset created using moderate resolution satellite imagery and extensive agricultural ground truth.	
262	Hourly weather forecast North America (HRRR)	The HRRR is a NOAA real-time 3-km resolution, hourly updated, cloud-resolving, convection-allowing atmospheric model, initialized by 3km grids with 3km radar assimilation. The HRRR is a NOAA real-time 3-km resolution, hourly updated, cloud-resolving, convection-allowing atmospheric model, initialized by 3km grids with 3km radar assimilation. Radar data is assimilated in the HRRR every 15 min over a 1-h period adding further detail to that provided by the hourly data assimilation from the 13km radar-enhanced Rapid Refresh	

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464	Land cover (Copernicus)	Data density indicator for the algorithm's input data.; Global land cover layers derived from PROBA-V satellite measurements. "The CGLS Land Cover product provides a primary land cover scheme at three levels, 12 classes at level 1 up to 23 classes at level 3, with classes according to the Land Cover Classification System (LCCS) scheme. Next to these discrete classes, the product also includes continuous field layers or "fraction maps" for all basic land cover classes that provide proportional estimates for vegetation/ground cover for the land cover types." [Source: product description] The dataset contains the version 2.0 data that is available for 2015 alone. According to the Copernicus Land Service, version 3.0 data with annual coverage from 2016 onwards is in preparation.	
312	Land use Australia	Land use in Australia on the so-called catchment scale, i.e. medium resolution scale.; Land use classification of Australia as provided by the Department of Agriculture compiled with various dates, scales and classification schemes. Australian land use classification scheme of 100+ classes has a hierarchical, three-level structure (primary: degree of human intervention, secondary: land management objective, tertiary: commodity group). The classification scheme (ALUM) has been modified over the years. The current version is ALUM v8. The so-called 'catchment scale' refers to one medium-resolution survey whereas the 'national scale' refers to the 8 low-resolution surveys (which have been published once every 1 to 5 years). For the latter 'national' scale, the raw data layers (simple aggregation of the state/province datasets to national 'raw' land use map) as well as the aggregation according to the respective ALUM classification scheme, is provided. Regardless, both scales do not refer to a geographic location as both provide data for all of Australia, i.e. are inherently 'national' . However, the classification scheme versions (ALUM) slightly vary across the surveys.	
179	Near real time earth observations (NASA LANCE)	I-4 channel brightness temperature of the fire pixel measured in Kelvin. The spectral range of the channel is 3.55-3.93 micrometers.; Near real time (NRT) data products issued by NASA's Earth Observing System (EOS) to support users to monitor and react to natural and man-made phenomena. The dataset contains data from the "Fire Information for Resource Management System (FIRMS)".	
252	Near real time imagery (GOES 16)	Blue band at 0.47 micron wavelength; image of the whole hemisphere around North and South America; The Geostationary Operational Environmental Satellite with 16 wavelength bands of coverage (GOES-16) is a system of two satellites covering the eastern and western parts of North and South America, operated by NASA and the National Oceanic and Atmospheric Administration (NOAA) The 16 spectral bands include 2 visible, 4 near-infrared and 10 infrared wavelengths. There is also a Lightning Mapper and four other instruments for monitoring space weather and the Sun. The bands can map cloud formation, atmospheric motion, convection, land surface temperature, ocean dynamics, flow of water, fire, smoke, volcanic ash plumes, aerosols and air quality, and vegetative health. The red band has 0.5 km pixels. The other visible light and near-infrared bands have 1 km pixels, and the infrared bands have 2 km pixels. The data was available starting early 2017.	
380	News coverage (GDELT)	Portion of news coverage about specific area and time related to Covid-19/Coronavirus.; Global events derived from worldwide news coverage. "The GDELT Event Database records over 300 categories of physical activities around the world, from riots and protests to peace appeals and diplomatic exchanges, georeferenced to the city or mountaintop, across the entire planet dating back to January 1, 1979 and updated every 15 minutes. Essentially it takes a sentence like "The United States criticized Russia yesterday for deploying its troops in Crimea, in which a recent clash with its soldiers left 10 civilians injured" and transforms this blurb of unstructured text into three structured database entries, recording US CRITICIZES RUSSIA, RUSSIA TROOP-DEPLOY UKRAINE (CRIMEA), and RUSSIA MATERIAL-CONFLICT CIVILIANS (CRIMEA)." [Source: GDELT project website]	
281	Ocean model (CFSv2)	Difference of evaporation and precipitation. Can be thought of as the net water flux into the ocean.; Ocean conditions as predicted by the CFSv2 seasonal forecast.	
332	Ocean wave forecast (ECMWF ENS)	GRIB shortName mdt.; 15-day ahead forecast of ocean conditions. The ECMWF Ensemble Prediction System (EPS) creates 51 forecasts - a control forecast as well as 50 perturbations. The data set contains the control forecast as well as the first 10 perturbations. Queries involving this dataset are subject to the following restrictions: Regular queries return data in non-geotagged graphic formats. (Synchronous) point queries are disabled.	
15	Reference evapotranspiration (IBM derived)	NAM based USA Reference Evapotranspiration; Numerical weather forecast-based reference evapotranspiration (Penman-Monteith). Daily evaporation (in mm) from the ground and evaporation + transpiration from crops under optimal conditions where the soil water content does not limit evaporation. It has three different layers derived from 3 weather forecasts: ECMWF, GFS, NAM.	

Dataset ID	Dataset Name	Description	New from Mar 2021 to July 2021
335	Satellite based radar (ESA Sentinel 1)	Synthetic Aperture Radar with VV Partial polarization; Sentinel-1 is an imaging radar mission providing continuous all-weather, day-and-night imagery at C-band (5.4 GHz). Data is acquired in two polarization VV and VH. Sentinel-1 provides dual polarization capability, very short revisit times and rapid product delivery. Synthetic Aperture Radar (SAR) has the advantage of operating at wavelengths not impeded by cloud cover or a lack of illumination and can acquire data over a site during day or night time under all weather conditions. The Interferometric Wide Swath Mode gives 5-by-20-meter resolution and a 250 km swath. The data is provided in two polarization: VV (partial dual polarization, VV only) and VH (partial dual polarization, VH only). The data is preprocessed with the ESA toolbox. The following corrections are performed: 1) Application of orbit file, 2) radiometric calibration, 3) terrain flattening, 4) terrain correction.	
100	Seasonal weather forecast (CFSv2)	Temperature 2 m above ground.; Climate Forecast System (CFS) v2 seasonal forecast. Surface parameters, up to nine months ahead.	
188	Seasonal weather forecast (CFSv2) (climatology)	GRIB codes: Discipline 0, parameter category 1, parameter number 7.; The dataset contains the model climate of the "Climate Forecast System Version 2" seasonal weather forecast. The methodology used in calculating this model climate follows that of Jung, Leutbecher, "Scale-dependent verification of ensemble forecasts." Quart.J.Roy.Meteor.Soc. 134: 973-984. The climatology uses forecast data from 2014 to 2017. For each day of the year (ignoring February 29 2016) and each hour of the day (out of 0, 6, 12, 18), predictions with up to 90 days forecast horizon were averaged. The final climatology arises from applying a 61 day weighted moving average. The weights increase/decrease linearly from 0 (at +/- 30 days from the center) to their maximum at the center.	
87	Snow coverage USA (NSIDC)	Snow Water Equivalent Observation; NOAA daily snow depth and snow water equivalent data in the continent of USA. Data was derived from interpolation of station measurement data.	
93	Soil properties USA	Sand content in 0 to 50 cm depth.; The USA soil property data is derived from the USDA SSURGO database - IBM Analytics product. It contains information about soil as collected by the National Cooperative Soil Survey over the course of a century. It is available for most areas in the United States and the Territories, Commonwealths, and Island Nations served by the USDA-NRCS. The survey data was gathered by walking over the land and observing the soil. Many soil samples were analyzed in laboratories.	
62	SoilGrids	Bulk density (g/cm3) of the fine earth fraction (<2mm).; Global soil properties at 250m resolution including soil profile information from 0 to 200cm. Collections of soil property maps for the world produced using machine learning at 250 m resolution. Predictions are made at six standard depths. SoilGrids uses global models that make use of all available input point data to map a property across the globe. This results in consistent predictions (no abrupt changes in predicted values at country boundaries, etc).	
182	Sub hourly weather forecast North America (HRRR)	The HRRR is a NOAA real-time 3-km resolution, hourly updated, cloud-resolving, convection-allowing atmospheric model, initialized by 3km grids with 3km radar assimilation. Radar data is assimilated in the HRRR every 15 min over a 1-h period adding further detail to that provided by the hourly data assimilation from the 13km radar-enhanced Rapid Refresh. [Source: HRRR Website. See link.]	
466	TWC Seasonal Weather Forecast	Data layers for seasonal forecasts across the globe from The Weather Company, an IBM Business. The TWC Seasonal Seasonal PFP offering consists of 50 equally likely scenarios. Maximum, minimum and average temperature, as well as total precipitation forecasts, are offered, extending out to 6-months at daily resolution. Forecasts are produced at monthly intervals (corresponding to the valid times of the forecasts), spanning from February 1981 to present. The underlying data source is from the ECMWF-S5 climate model, which is calibrated against the ERA5 dataset.	*
379	US healthcare infrastructure	The number of beds in the hospital.; Dataset includes data layers with relevant information pertaining to the healthcare infrastructure of the United States and its territories, including hospital locations and bed capacity, hospital capacity at the state-level, nursing home locations and bed capacity, and emergency medical services.	
392	US mobility (Descartes Labs)	Median of the maximum-distance mobility.; Mobility data derived from mobile devices. Note that the exact source of the data -- i.e. which mobile device dataset it is based on -- is not known.	
284	Wildfire risk potential	USDA generated Wildfire Hazard Potential; Wildfire Hazard Potential can help to inform evaluations of wildfire risk or prioritization of fuels management needs across very large landscapes. Is calculated by the USDA Forest Service and by USGS. Wildfire Hazard Potential* for the conterminous United States	

Dataset ID	Dataset Name	Description	New from Mar 2021 to July 2021
299	Wildland fire (USFS)	<p>A Fire Danger Rating level taking into account current and antecedent weather, fuel types, and both live and dead fuel moisture.; Fire danger indexes for dead fuel extracted from individual weather station and interpolated to a spatial grid. The dead fuel moisture threshold (10â€‘hour, 100â€‘hour, or 1,000â€‘hour), called a time lag, is based upon how long it would take for 2/3 of the dead fuel to respond to atmospheric moisture. The fuel moisture index is a tool that is widely used to understand the fire potential for locations across the country. Fuel moisture is a measure of the amount of water in a fuel (vegetation) available to a fire, and is expressed as a percent of the dry weight of that specific fuel. 10â€‘hour \t0.25 to 1 inch diameter \tComputed from observation time temperature, humidity, and cloudiness. Can also be an observed value, from a standard set of fuel sticks that are weighed as part of the fire weather observation. 100-h, 1 to 3" diameter. Computed from 24-hour average boundary condition composed of day length, hours of rain, and daily temperature/humidity ranges. 1000-h, 3 to 8 " diameter. Computed from a 7-day average boundary condition composed of day length, hours of rain, and daily temperature/humidity ranges.</p>	