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BIG-DATA ANALYSIS FOR WEATHER FORECASTING AND PREDCITION FOR SCALABILITY REPORTS

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Abstract:

In this paper deliver to some weather Climate change will increase the defenselessness of agricultural production systems, unless scientists and farmers reorient their now some approaches toward making them climate smart or climate resilient. can really increase rate agricultural research and modernism for typical weather Smart Agriculture Three levels at which big data can enhance farmer field level and perform e knowledge for the perform of temperature smart agriculture are identified developing a extrapolative capability to factor climate change effects to scales related to undeveloped perform, speeding up plant propagation for elevated output and climate resilience, and delivery of made to order and real time farm knowledge for higher productivity, climate change adaptation and mitigation. The big data based approaches at each of the some levels are assessing. In this paper also classify the explore and big data in research and modernization aimed at climate smart agriculture in India that identify the report last some years weather report and some critical conditions reports and still and what are the defects collects data from the satellite and sends to the different base station and finally stores in the National Climatic Data Centre report specify output of result consists of, least amount temperature, greatest temperature, number of hot days and cold days and also predict future weather forecast, which brings the great significance of our work.

Keywords: Big data, scalability, weather reports.

Introduction:

Climate change intensifies the challenge of prospect food refuge Rising average temperatures, more variable rainfall and increasing frequency of extreme events, resulting from anthropogenic climate change will increase vulnerability of agricultural production systems, unless scientists, farmers and agribusiness reorient their present approaches to make them climate smart or climate flexible. Agriculture also accounts some percent of total Green House Gas emission that contribute to climate change, and the largest share the future way of agriculture.

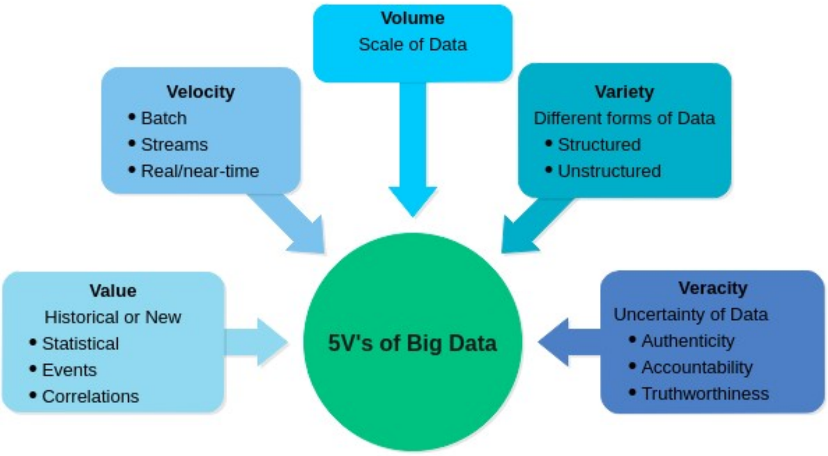
The big data technologies swear new levels of scientific discovery and innovative solutions to complex problems (National Science and Technology Council They can be leveraged to address complex problems of addressing climate change and its impacts on agriculture, climate, remote sensing, and individual farms for generating scientific, economic, social and environmental value in agriculture is underscored by Monsanto's recent (2013) acquisitions of Climate Corporation, Precision Planting, and several other data resource and analytics companies; similar acquisitions and partnerships among agribusiness multinationals and emerging in agriculture that leverage data analytics Gilpin, 2014 The Digital India proposal has also made India a fertile ground for diverse groups of scientists, students, analysts, businesses, and entrepreneurs to leverage big data for farmer and business value. Indian agriculture financed, and the largest globally in drones, irrigation technologies and data driven agricultural decision support systems

Supporting for big data:

In this paper is to assess the state-of-art on how big data tools and methods can be leveraged to integrate climate, crop and agricultural informatics with design and management of agricultural systems at farm level for climate smart agriculture. The potential opportunities, challenges, and the way forward for research and innovation aimed at climate smart agriculture in India are identified. The paper is structured as follows:

1. Big data - a perspective on technologies and potential in agriculture
2. Big data and climate smart agriculture, and
3. Roadmap for leveraging big data for climate smart agriculture in India

5 keys of big data process



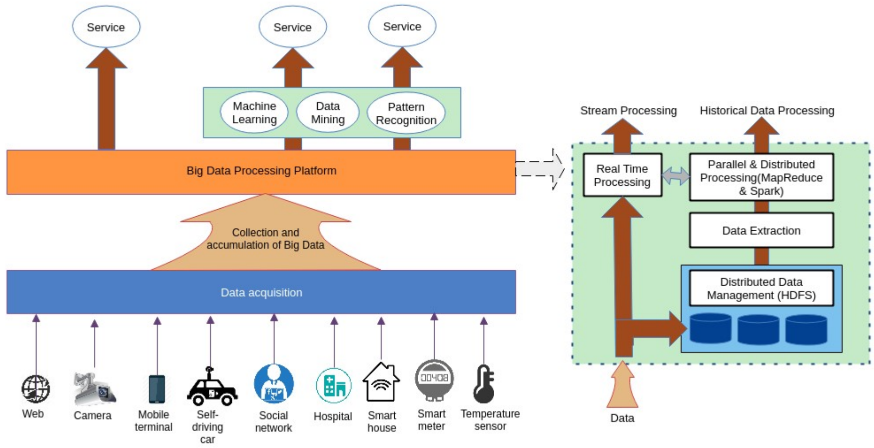
Big Data and Climate Smart Agriculture

As agriculture constantly seeks new products, practices and technologies to enhance food security, and farmer and consumer welfare, the productive capacity of its natural resources base is shrinking. Climate change compounds the exigencies of food security and natural resource sustainability by exposing farming to greater uncertainties and risks of extreme events (WMO, 2010, Campbell et al., 2016).Agriculture also contributes to climate change with the major share (37%) of N2O and CH4 emissions (Paustian, 2016). Improved soil and crop management can substantially reduce emissions and restrict global temperature increases.

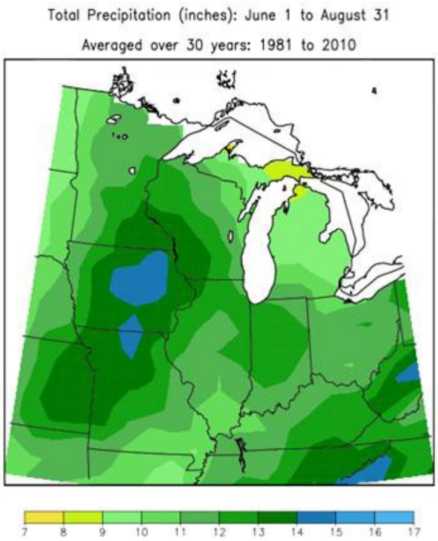
Speeding up and improving precision of plant breeding for climate resilience:

Plant breeding provides the primary genetic resources for farm scale climate stress resilience. But, conventional plant breeding cycles are long (5-20 years), designed for average macroAccepted environment conditions, and limited by existing gene pools. This limits the capacity to respond urgently and precisely to rapidly variable conditions and extremes under climate change. Even transgenic and molecular breeding approaches are relatively slow and uncertain as they depend on random integration of new gene sequences into plant genomes. The former are further slowed by regulatory systems for GMOs. Further, plant breeding target genes for CSA are most likely to be tolerance to abiotic stresses and general productivity, adaptation and mitigation improvements (increasing photosynthesis, altering flowering times and root systems; increasing nutrient uptake from applied fertilizers, etc.). These are multigenic traits, and thus difficult and slow with conventional breeding. Combining big data from genomics, phenomics, and climate models with new genetic engineering tools can potentially speed up and improve geographic specificity and precision of plant breeding.

Large data of scalability process:



The idea for Agricultural production systems. Frequency and amount of rainfall, heat stress, pests, ozone levels, and extreme events such as heavy precipitation, flooding, drought, late spring or early fall freezes, and severe thunderstorms (high winds, hail) can seriously affect yields and/or commodity quality levels. The risks of significant losses from such events are often higher for smaller producers and for specialty crops. The major urban centers in the region, which include Chicago, Cincinnati, Cleveland, Detroit, Indianapolis, Milwaukee, Minneapolis-St. Paul, and St. Louis, are more sensitive to some weather and climate events due to the specific characteristics of the urban environment such as building density, land use, urban sprawl, and proximity to the Great Lakes. Extreme air and dew point temperatures can have large impacts on human health, particularly in the urban core where the urban heat island effect elevates summer afternoon temperatures and slows cooling at night. Severe storms, both winter and summer, result in major disruptions to surface and air transportation that often have impacts well beyond the region. During the winter, cities such as Chicago, Milwaukee, and Cleveland are susceptible to lake-enhanced snowfall during winter storms. Extreme rainfall causes a host of problems, including storm sewer overflow, flooding of homes and roadways, and contamination of municipal water supplies. Climate extremes combined with the urban pollution sources can create air quality conditions that are detrimental to human health.



Summer dearth, heat, and surplus rain

Now current updates process agriculture in this district is rain fed, the west is highly susceptible to summer drought. As the nation's "breadbasket" and a major international food production area, droughts can have considerable economic ramification both nationally and internationally. Large scale regional droughts were relatively common in the Midwest during the period of 1895 to 1965, but since 1965, only the summer droughts of 1988 and 2012 have had severe impacts across the entire region. Due to the potentially large areas impacted, regional droughts may contribute to large increases in world-wide commodity and food prices. During the summer, convective events can produce excessive rain over localized areas. These events can produce flooding along small rivers and streams as well as in urban areas where drainage is not adequate. Despite typically being short-lived, these flash flooding events can leave behind much damage. Climatologically, the fraction of annual precipitation associated with the 10 largest events of the year increases from less than 0.3 across eastern Ohio to more than 0.5 across western sections of Minnesota, Iowa, and Missouri (Pryor et al., 2009a)

	Precipitation (in./year)					Temp (ºF/year)				
1895-2010	Annual	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall
IA	0.040***	0.002	0.017***	0.020***	0.000	0.009**	0.014	0.014**	0.004	0.001
IL	0.039***	0.004	0.012	0.012*	0.010	0.004	0.005	0.011*	-0.001	-0.001
IN	0.049***	0.001	0.015*	0.020***	0.012	0.003	0.006	0.010*	-0.005	-0.001
MI	0.038***	0.003	0.004	0.016***	0.016***	0.001	0.008	0.007	-0.006	-0.008
MN	0.029***	0.003	0.008	0.008	0.010*	0.014***	0.022*	0.015**	0.008*	0.006
MO	0.027	0.005	0.010	-0.004	0.015*	0.005	0.008	0.010*	0.002	-0.004
OH	0.034***	-0.002	0.011*	0.008	0.015***	0.008***	0.011	0.014***	0.002	0.003
WI	0.022**	0.002	0.005	0.012*	0.003	0.009***	0.019*	0.013*	0.002	0.002
AVG	0.035	0.002	0.010	0.012	0.010	0.007	0.012	0.012	0.001	0.000

	Precipitation (in./year)					Temp (ºF/year)				
1981-2010	Annual	Winter	Spring	Summer	Fall	Annual	Winter	Spring	Summer	Fall
IA	0.075	0.031	0.044	0.079	-0.081*	0.007	-0.031	-0.010	-0.006	0.062
IL	0.078	0.029	0.053	0.051	-0.053	0.036	0.014	0.046	0.020	0.050
IN	0.196*	0.073	0.066	0.069	-0.011	0.033	0.005	0.058	0.016	0.040
MI	0.000	0.040	0.033	0.006	-0.076**	0.041	0.036	0.018	0.030	0.081***
MN	0.016	0.028**	0.023	-0.025	-0.003	0.028	0.007	-0.037	0.005	0.122***
MO	0.014	-0.007	0.073	0.013	-0.065	0.038	0.020	0.035	0.045	0.043
OH	0.222**	0.084***	0.066	0.057	0.017	0.042*	0.008	0.060	0.048	0.047
WI	-0.005	0.033	0.035	0.033	-0.104 ***	0.037	0.030	-0.005	0.015	0.100***
AVG	0.075	0.039	0.049	0.036	-0.047	0.033	0.011	0.021	0.022	0.068

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Problem Definition: The over development of expected resources has resulted in the serious ecological difficulty. Additional problems have also come forward due to the increase in the world's average temperature. Recent advances in the satellite technology and sensor data has improved in ground-based environmental observations.

B. Objective:

To provide

i. The utmost and least amount temperature of city for year.
ii. To predict the climate changes obtained from the map reduce.
iii. To be able to provide schedule the events based on this climate data. Iv
iv. To be prepared for the different natural calamities like humidity and cold.
v. To provide visualization of the obtained data and compare the increase and decrease in global warming.

Conclusion

In this paper anticipated weather guess using big data setting. The way used in our project is with map reduce to examine the sensor data, which is store in the National Climatic Data Centre is a competent solution. Map reduce is frame work for highly parallel and distributed systems across huge dataset. It is used to analyze for the given data and predict required output to our project. By using map reduce with system helps in removing scalability bottleneck. The big data based approaches at each of the some steps are assessed. and the way frontward for leveraging big data in research and innovation aimed at climate smart agriculture in India that identify the report last few years weather report and some crucial weather reports and still and what are the defects collects data from the satellite and sends to the different base station and finally stores in the national climatic data centre report specify output of result consists of, minimum temperature, maximum temperature, number of hot days and cold days and also predict future weather forecast, which brings the great significance of our work technology used to analyze large data sets has potential to great enhancement to weather calculate.

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