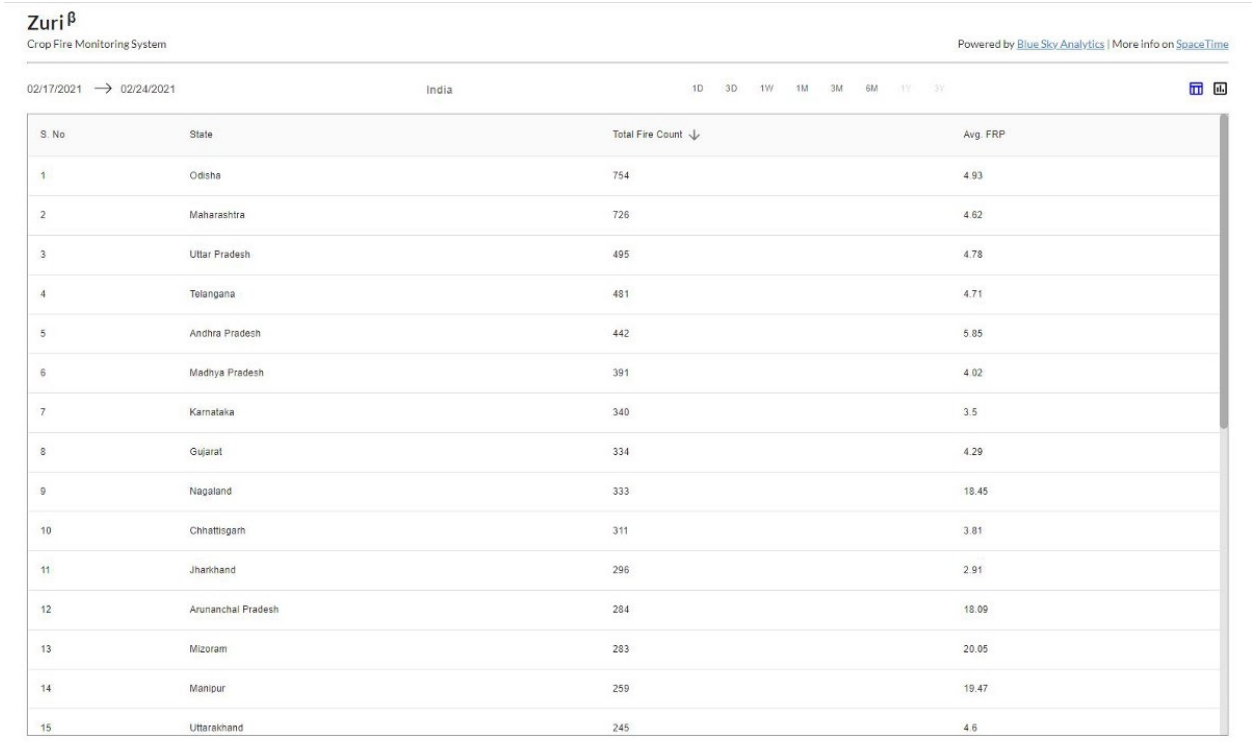
Crop Fire Monitoring System Redesign

Crop fire data is an important asset for a country like India. Keeping the importance of data in mind, different graphs, maps and tables are used to depict the connecting data that create greater impact on users.

Major problems with the current design are as follows:

1. The switch between table and graph shows very less significance as table have all states and union territories in the list whereas graph shows only top states
2. Table isn't intuitive enough to show possible actions on rows. Like on first view, user's won't get that on clicking a row of state table we get redirected to another table that shows district wise data
3. As the data is being fetched from satellites, there can be more insights to help diverse users and there can be some devised data that can be generated using simple algorithms. Currently the design shows basic data with least possible interactions



S. No	State	Total Fire Count	Avg. FRP
1	Odisha	754	4.93
2	Maharashtra	726	4.62
3	Uttar Pradesh	495	4.78
4	Telangana	481	4.71
5	Andhra Pradesh	442	5.85
6	Madhya Pradesh	391	4.02
7	Karnataka	340	3.5
8	Gujarat	334	4.29
9	Nagaland	333	18.45
10	Chhattisgarh	311	3.81
11	Jharkhand	296	2.91
12	Arunanchal Pradesh	284	18.09
13	Mizoram	283	20.05
14	Manipur	259	19.47
15	Uttarakhand	245	4.6

Old UI

SOLUTION

The best way to make an effective presentation is to give customized and categorized data knit in a way that makes the user feel satisfied in the longer run.

To achieve the same, the data and the user have been classified into different categories, as explained in the next section.

DATA CLASSIFICATION

Assumption made—Data is being fetched from satellites

Data can be classified into 2 categories

BASIC DATA

In terms of location—This data can be fetched directly from the satellite, there will be insights about the states affected, the district wise details about affected locations and to be precise the latitude and longitude stretch of the area most affected, this data is easy to be derived from satellites. Exact details of location being precise can help a great deal to researchers.

In terms of crop fires—This data will be in three forms

1. The number of crop fires per state/district/region
2. the average fire rate per state/district/region
3. crops which are damaged the most.

Crop fire information is useful for all users, but the insights about damaged crops are very important for users who have agricultural background, because the insights will certainly help them identify the fire pattern and vulnerable crops and other problems that will be arising.

DERIVED DATA

Crop fire directly and adversely affects the Air Quality Index. So it is easy to calculate and predict the effect of crop fires in a region on the air quality index of that region. This data can be highly beneficial for companies whose product revolves around anti-pollution/ anti-contamination of the environment. And a plus to it, this information is highly valuable to every user to get insights on AQI (Air quality index)

USER CLASSIFICATION

User classification is a necessary step, as requirements and understanding of the problems of different user groups are different. Keeping this in mind users are classified in 4 major categories:

1. Agriculturists—People who are directly and indirectly affected by crop fire in terms of finances are kept in this category. For them important information are the crop fires per region, most affected places, which crops are affected the most and effect on.
2. Researches—People who keep an eye on crop fire data to analyse market, agriculture trends, faults etc. For them most important information are the crop fires per region, effect of fires on AQI, details of most affected areas in terms of latitude and longitude stretch and most affected areas in general.
3. Managers/Product people—People who are involved in a market that makes gadgets to prevent crop fires, or are a member of the supply chain, or are activists and work on pollution and global warming, etc. For them most important information is crop fires per region, effect on AQI, affected crops.
4. General users—This is the category for all those who don't fall in any of the above mentioned category. Because this group isn't necessarily affected by the crop fire, the information provided is the one that is basic and essential, this group will know about crop fires per region, effect on AQI, and areas affected most.

DESIGNS

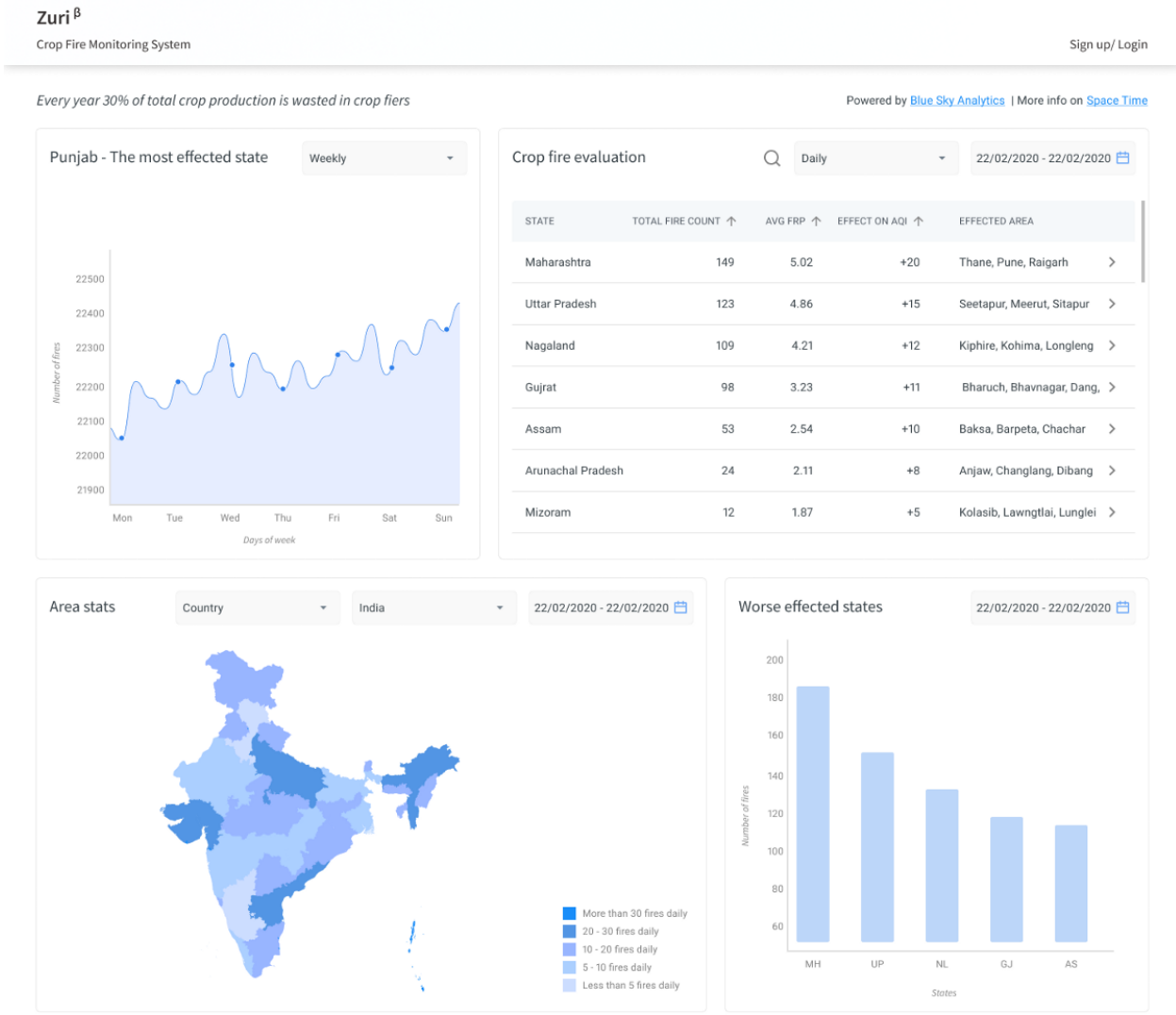
In case the user hasn't registered yet, the state which is affected the worst will be shown for the line graph. But once a user has registered in first view, his state will be shown to add fluidity to the system this will be navigable. Anytime users can select different states for which they want more insights.

Basic information about crop fires will be shown in the table. Non users or general users will have a basic overview of information, whereas rest users will have access to different information as per their group, which has been discussed above. The best part of this hierarchy is to show all users every information, but at different views in different forms. For eg: A manager won't see which regions are affected the most in a state in first view but once they click on a state, they will get state wise insights thus will come to know which regions of state are adversely affected.

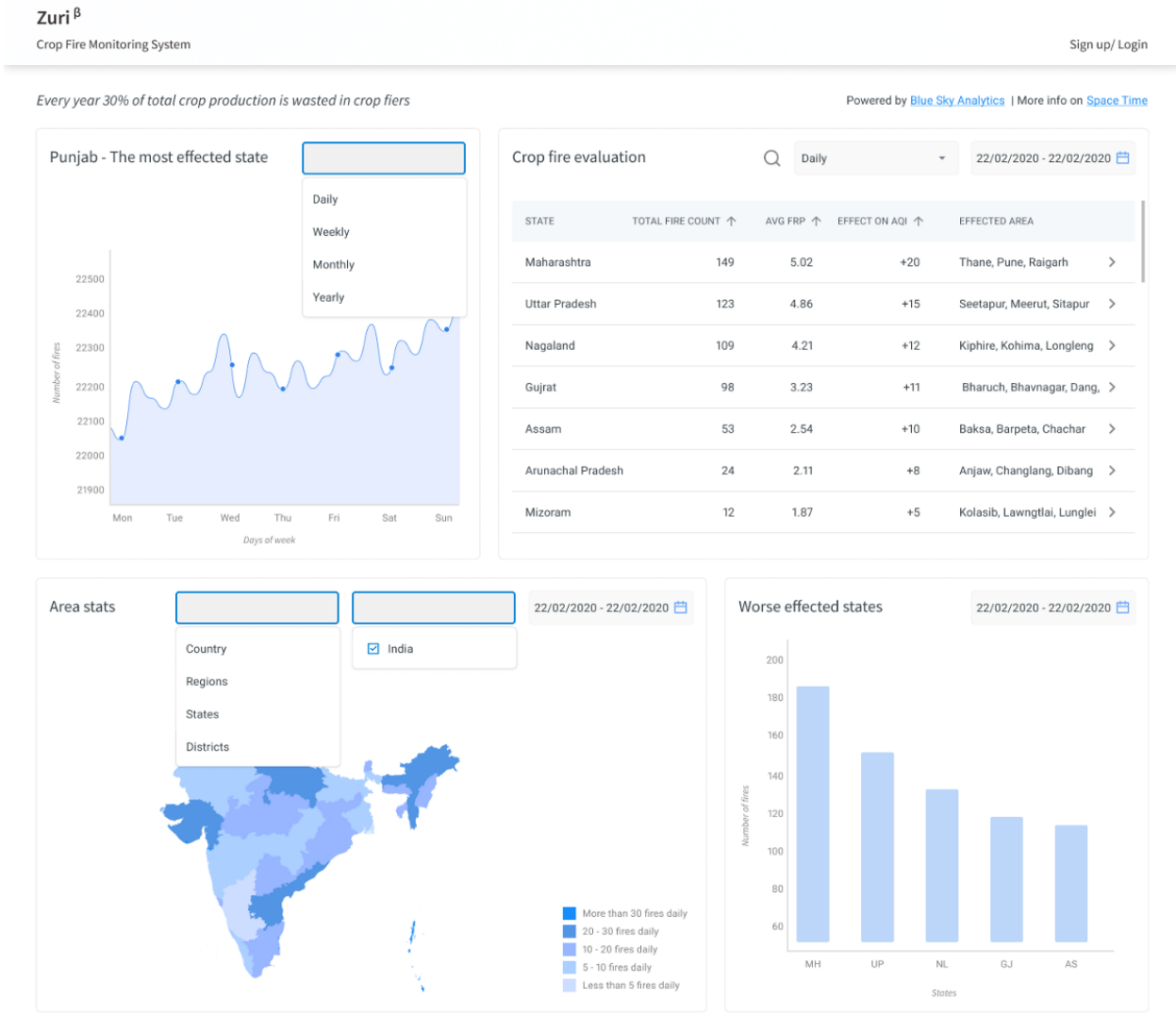
Area stats will be shown for the whole country in first view, but it will be navigable. One can select state/region/district wise division and select all state/region/district for which they need to know insights. For registered users in ideal states their state's map will be visible, which will be navigable.

The bar graph for the 5 most affected states will be constant among all screens and all users this will help users have more insights and will facilitate easy comparison among different states.

The designs suggested are as follows:



Non User Ideal State



Non User Drop Down State

Zuri β

Crop Fire Monitoring System

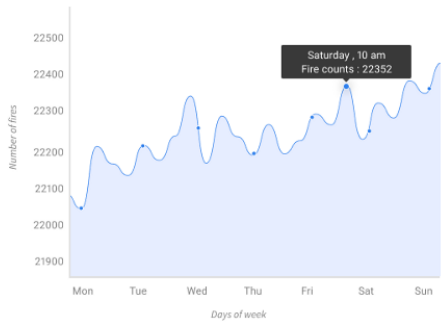
Sign up/ Login

Every year 30% of total crop production is wasted in crop fiers

Powered by Blue Sky Analytics | More info on Space Time

Punjab - The most effected state

Weekly



Crop fire evaluation

Daily

22/02/2020 - 22/02/2020

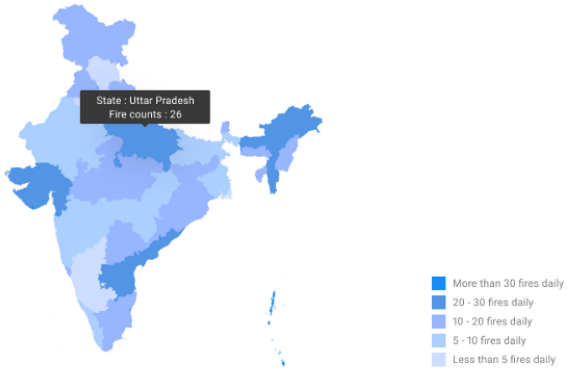
STATE	TOTAL FIRE COUNT	AVG FRP	EFFECT ON AQI	EFFECTED AREA
Maharashtra	149	5.02	+20	Thane, Pune, Raigarh
Uttar Pradesh	123	4.86	+15	Seetapur, Meerut, Sitapur
Nagaland	109	4.21	+12	Kiphire, Kohima, Longleng
Gujrat	98	3.23	+11	Bharuch, Bhavnagar, Dang,
Assam	53	2.54	+10	Baksa, Barpeta, Chachar
Arunachal Pradesh	24	2.11	+8	Anjaw, Changlang, Dibang
Mizoram	12	1.87	+5	Kolasib, Lawngtlai, Lunglei

Area stats

Country

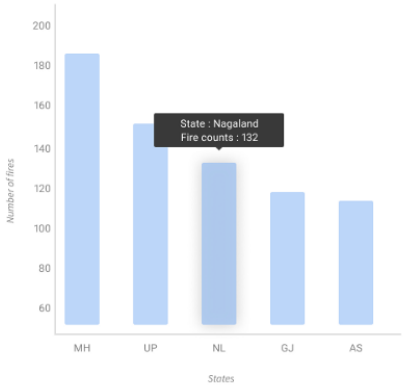
India

22/02/2020 - 22/02/2020

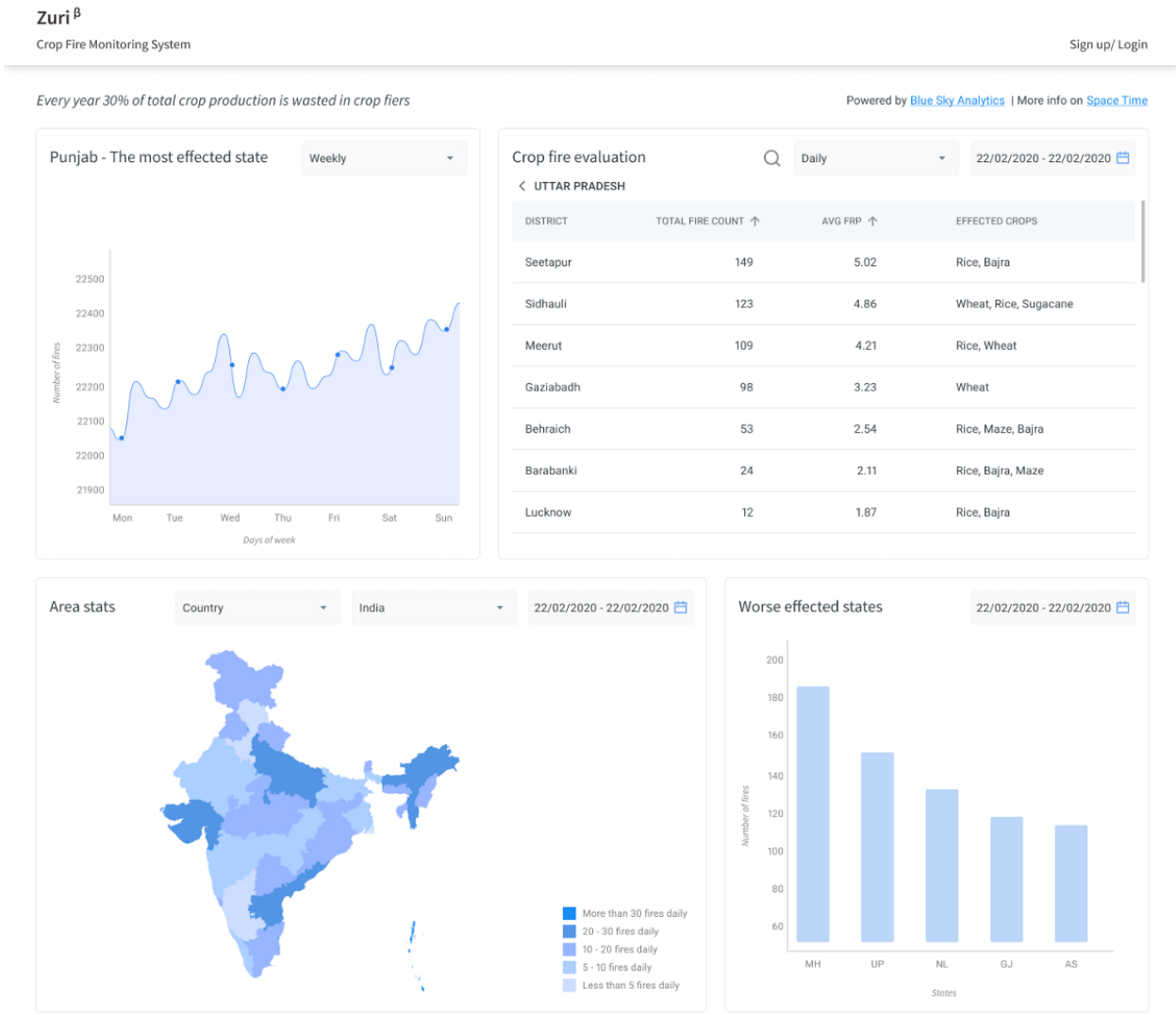


Worse effected states

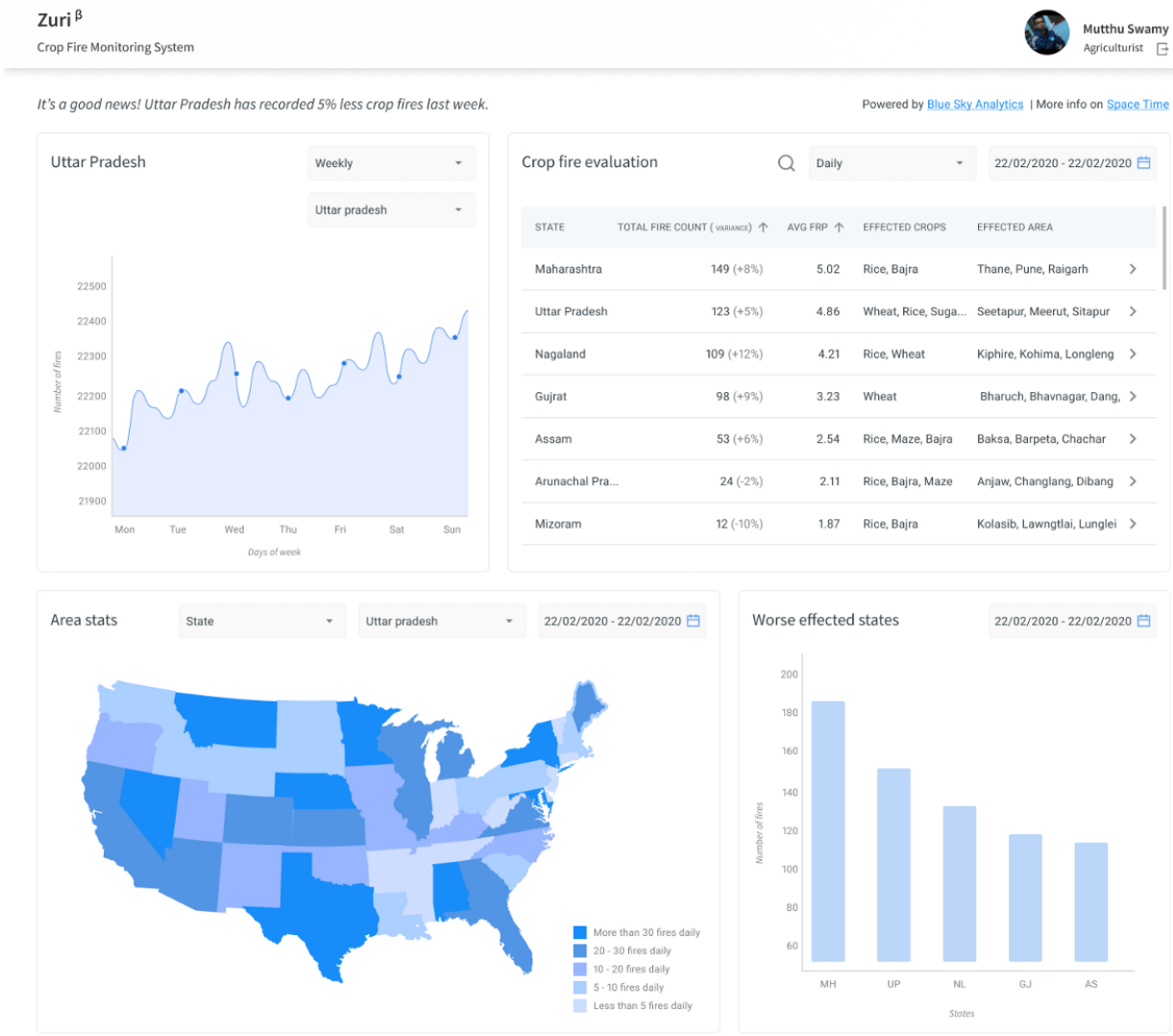
22/02/2020 - 22/02/2020



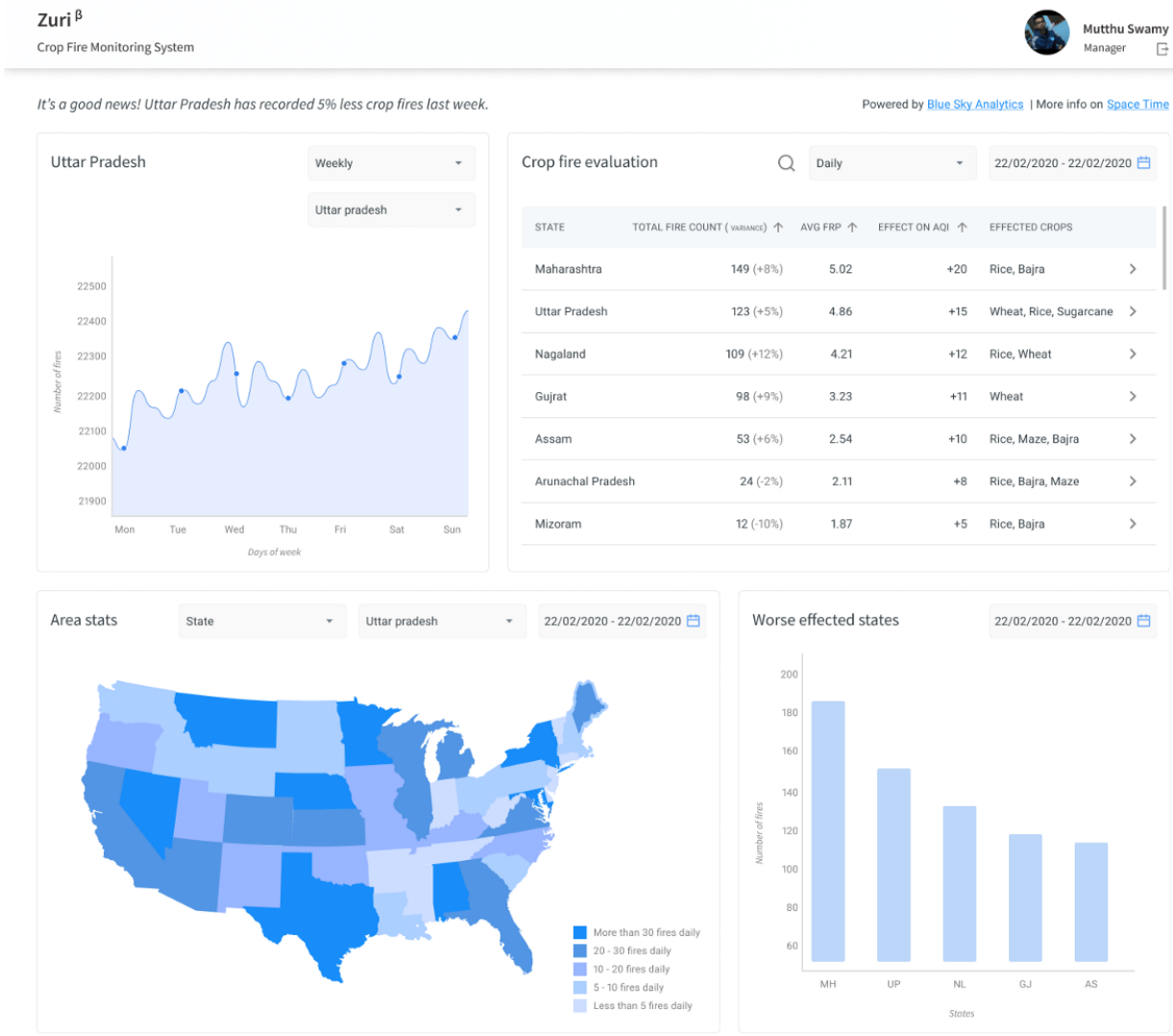
Non User Tool-tip



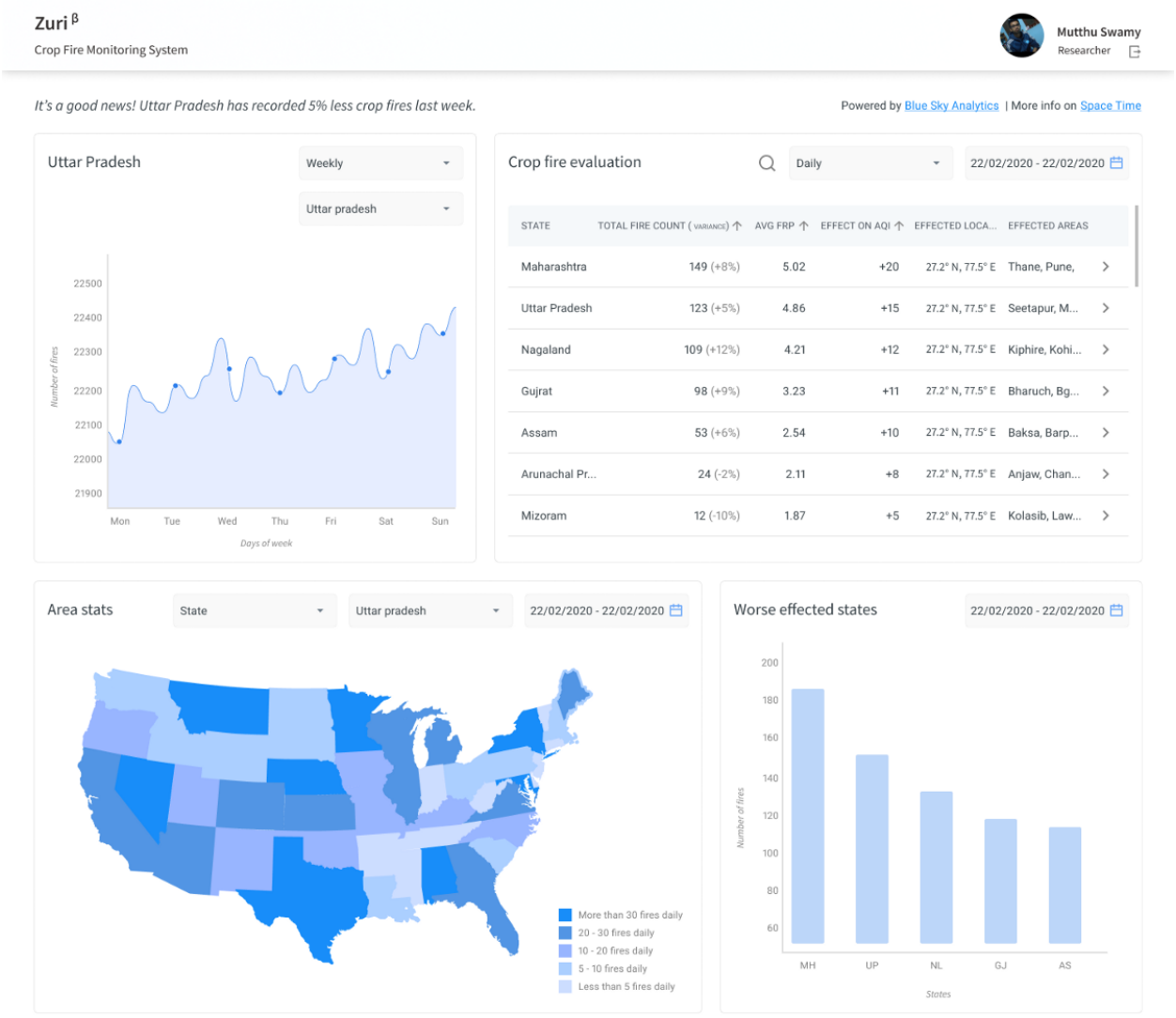
Non User District Wise Details



User-Agriculturist Ideal State



User-Manager Ideal State



User-Researcher Ideal State

CONCLUSION

Crop fire data isn't just data it's important information that must be depicted in a way that creates more awareness and has lasting impact on users, keeping this in mind different graphs are used.

This design draws us one step closer to taking crop fires, an important issue that needs to be addressed.