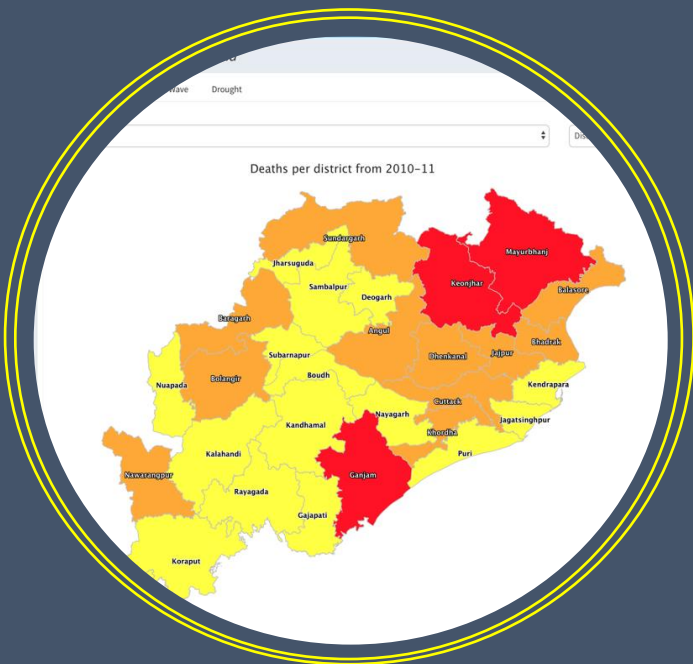


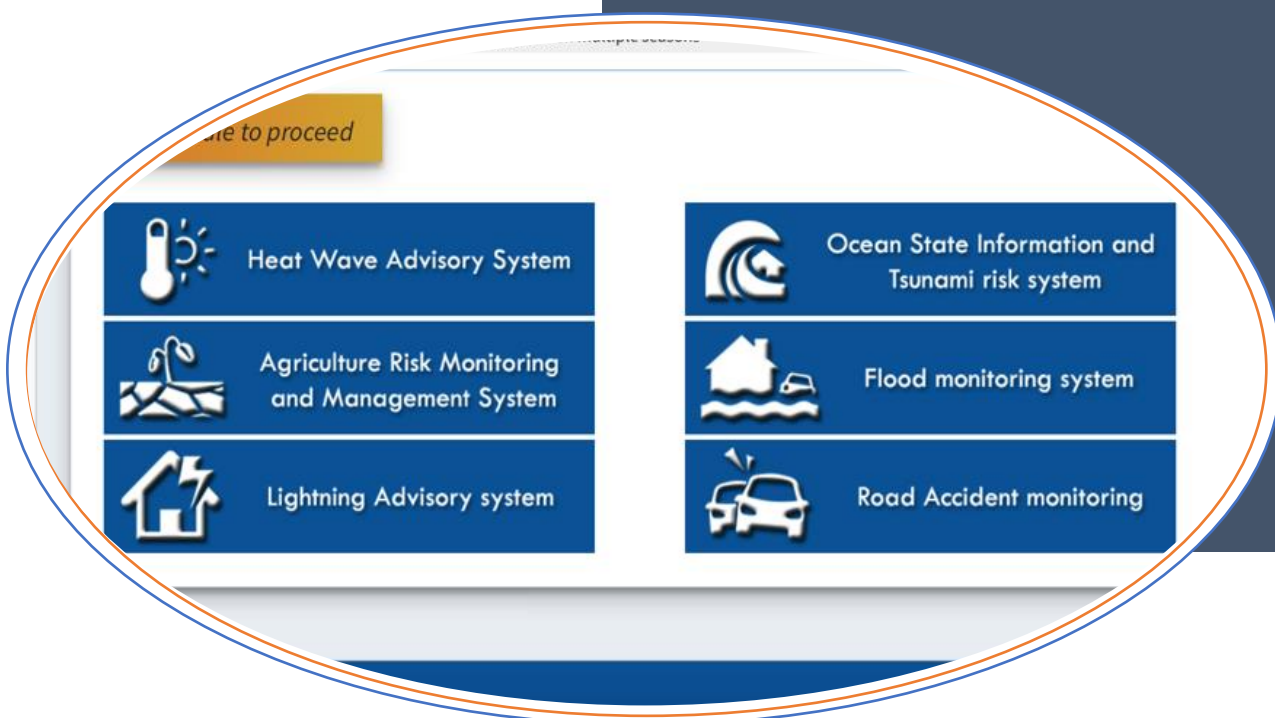
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SATARK

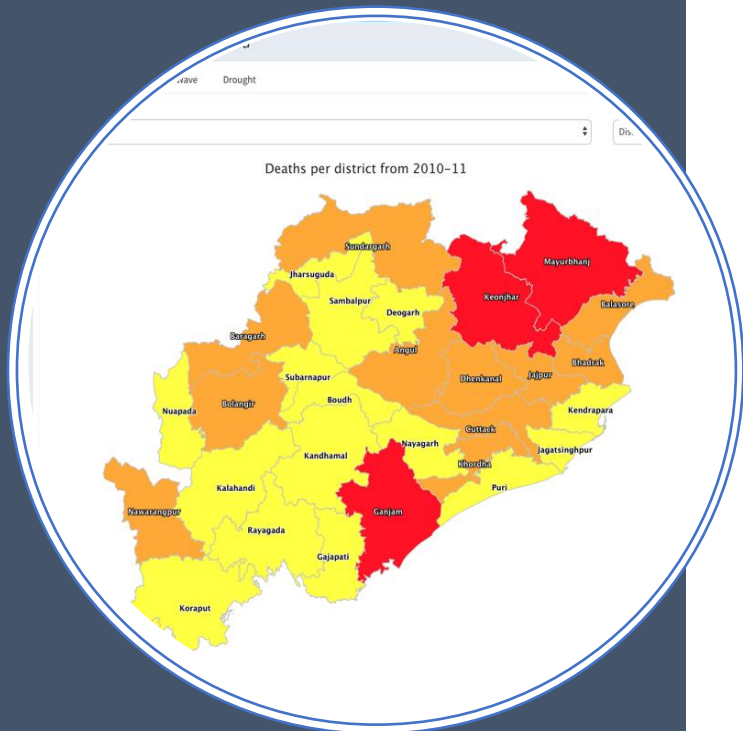


ABOUT SATARK

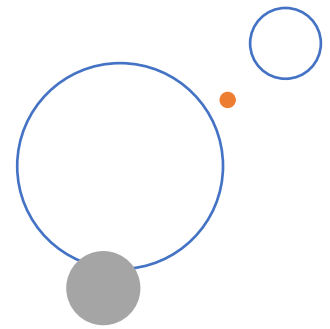
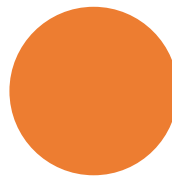
- ✓ SATARK is a web/smart-phone based Decision Support System that aids in provision of timely early warning information for different hazards such as lightning, heatwaves, floods, and agricultural risks (droughts).
- ✓ The system translates generic weather forecast products into user-friendly actionable advisories, based on thresholds drawn from historical patterns, to ensure effective preparedness in place to minimize the risk.
- ✓ It utilizes a “machine learning algorithm” to self-learn from each seasonal cycle of operation, and improving on its own advisory generation process, over season.
- ✓ SATARK web-based tool is available at <https://www.satark.rimes.int> and mobile App is available at Google Play Store.



DISASTER IMPACT PROFILE



- ✚ Disaster impact profile module houses the time series of historical disaster related information at block and district level.
- ✚ The module has options to interactively generate infographics on disaster frequency and its associated impacts, block-wise and district-wise.
- ✚ This dynamic module will enable experts to key in all relevant data pertaining to a disaster through a data entry panel such as damages, economic losses, injured humans, missing persons etc. at both district and block levels.
- ✚ This module will help identifying priority blocks and districts that are more vulnerable for different hazards, for paying attention to design DRR activities and to ensure at-most preparedness measures.



WEATHER FORECAST

Products and its lead time

India Meteorological Department's GFS – 10 days

European Center for Medium Range Weather Forecasting – 10 days

RIMES Experimental Weather Research Forecast – 3 days

Weather Parameters

Rainfall

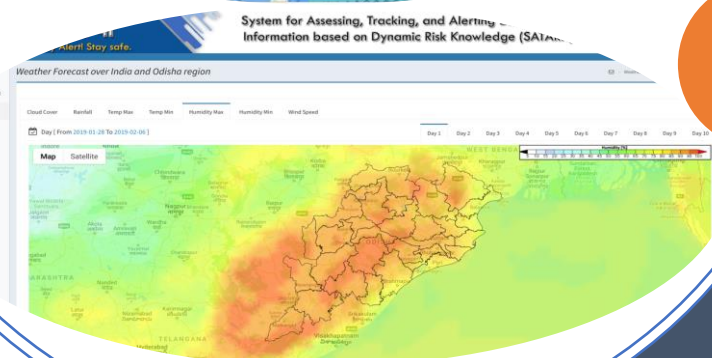
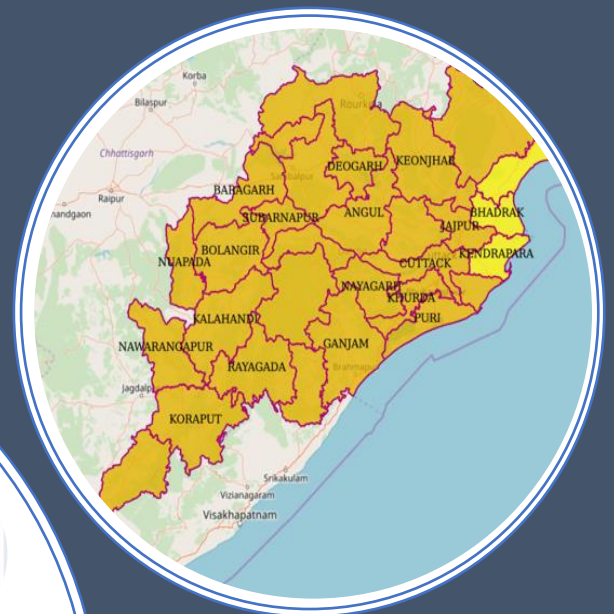
Temperature

Humidity

Windspeed


Cloud cover

- SATARK integrates forecast product from India Meteorological Department (IMD) and European Center for Medium range weather forecast (ECMWF) to visualize the forecast products superimposed on google map.
- The forecast products are also used for assessing the potential risk in various hazard module.




LIGHTNING ADVISORIES

- Based on real-time data feeds received from the lightning monitoring sensors network, SATARK issues different level of warnings and advisories, based on thresholds drawn from historical patterns of events.
- Probable dangerous thunderstorm alerts with a lead time of 30 mins can be issued based on the sensor data.
- Advisories can be auto/generated and shared with all users in the neighborhoods though short messaging service (SMS) platform and through the SATARK mobile application



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OSDMA

MAIN NAVIGATION

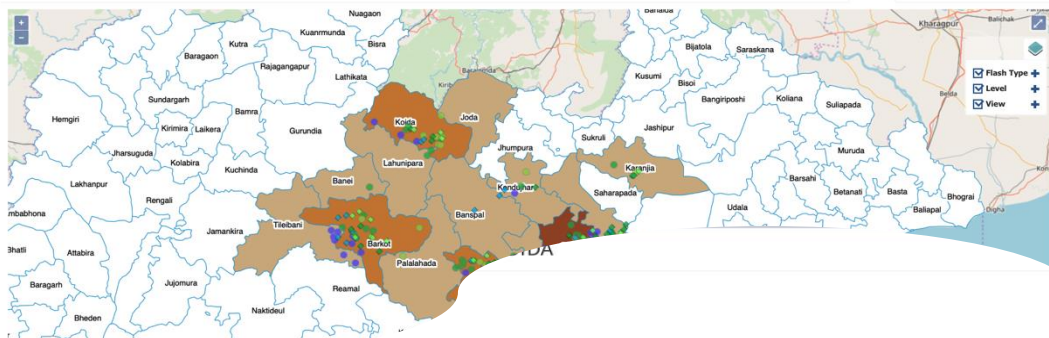
- Home
- Lightning Forecast
- Recent Event
- Advisory
- Report False Alarm
- Data Entry & Archival
- Logout

Now Cast - Likelihood of lightning in next

Block Level

District Level

30 Min 1 Hour 6 Hour 24 Hours



କଣ କରିବା ଉଚିତ ।

- ବିଜୁଳି କିମ୍ବା ଘଡ଼ଘଡ଼ି ମାରିବା ସମୟରେ ପଲ୍ଲୀଘର ଭିତରେ ଆଶ୍ରୟ ନିଅନ୍ତୁ ।
- କୌଣସି ବଡ଼ ଗଛ, ଭଡ଼ ଖମ୍ବ ବା ମୋବାଇଲ୍ ଟାଓର ତଳେ ଆଶ୍ରୟ ନିଅନ୍ତୁ ନାହିଁ । କାରଣ ଏହାକୁ ଘଡ଼ଘଡ଼ି ଯଥାଶୀଘ୍ର ଛୁଇଁ ଥାଏ ।
- ଅନ୍ୟ ବ୍ୟକ୍ତିଙ୍କ ଠାରୁ ଅତିକମରେ ୫ ମିଟର ଦୂରରେ ରୁହନ୍ତୁ ।
- ଯଦି ଆପଣ ଖୋଲା ପଡ଼ିଆରେ ଅଛନ୍ତି, ଛୋଟ ବୁଦା ବା ଛୋଟ ଗଛ ପାଖରେ ଆଶ୍ରୟ ନେଇ ପାରନ୍ତି ।
- ବଜ୍ରପାତ ହେଉଥିବା ସମୟରେ ଆପଣ ଯଦି ଘର ବାହାରେ ଅଛନ୍ତି, ନିର୍ଦ୍ଦିଷ୍ଟ ଆଶ୍ରୟ ବନ୍ଧା କରି ଛାଡ଼ି ଚଳନ୍ତୁ କିମ୍ବା ବସି ପଡନ୍ତୁ ଏବଂ ହାତ ପାଦୁକା ଯାହାମଧ୍ୟରେ ଦୂର କାଳକୁ ବନ୍ଦ ରଖନ୍ତୁ ।
- ଶେଷ ଥର ବିଜୁଳି ଦେଖିବା କିମ୍ବା ଘଡ଼ଘଡ଼ି ମାରିବା ଠାରୁ ୩୦ ମିନିଟ୍ ପର୍ଯ୍ୟନ୍ତ ଅନ୍ତତଃ ବାହାରକୁ ବାହାରକୁ ନାହିଁ ।
- ଯଦି କୌଣସି ବ୍ୟକ୍ତିଙ୍କୁ ବିଜୁଳି ମାରେ, ତାଙ୍କୁ ଯଥାଶୀଘ୍ର CPR ଦିଅନ୍ତୁ, ତାଙ୍କ ଛାତିକୁ ପଟ୍ଟ କରନ୍ତୁ, ମୁହଁକୁ ମୁହଁ ଲଗାଇ ନିଃଶ୍ୱାସ ପ୍ରଣାଳୀ କରାନ୍ତୁ ଏବଂ ଯଥାଶୀଘ୍ର ଡାକ୍ତରଖାନାକୁ ନେଇ ଯାଆନ୍ତୁ ।

କଣ କରିବା ଅନୁଚିତ ।

- କୌଣସି ଧାତୁସ୍ତ୍ରୁ ଡିଆରି ଜିନିଷ, ଉଦ୍ୟୋଗ ଯନ୍ତ୍ରପାତି ଓ ଧାତୁସ୍ତ୍ରୁ ରାସ୍ତାଠାରୁ ଦୂରରେ ରୁହନ୍ତୁ କାରଣ ଏହା ବଜ୍ରପାତକୁ ଦୂରକୁ ଟାଣି ପାରେ ।
- ସ୍ନାନ କରିବା, ଜଳରେ ଖେଳିବା, ନୌକରେ ଯାତାୟତ କରିବା ଓ ପୋଖରୀକୁ ଯିବା ଠାରୁ ଦୂରରେ ରୁହନ୍ତୁ ।
- ଯଦି ଖୋଲା ଜାଗାରେ ଅଛନ୍ତି ତାହାଲେ ସେଠାରେ ଥିବା ଛୋଟ କୁଡ଼ିଆ ଓ ଘର ଠାରୁ ଦୂରରେ ରୁହନ୍ତୁ ।

Look for further update in few minutes.

Dos

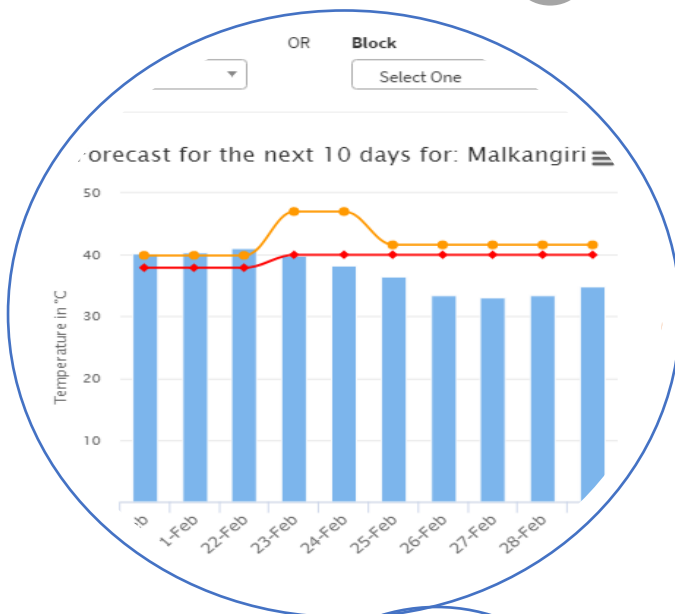
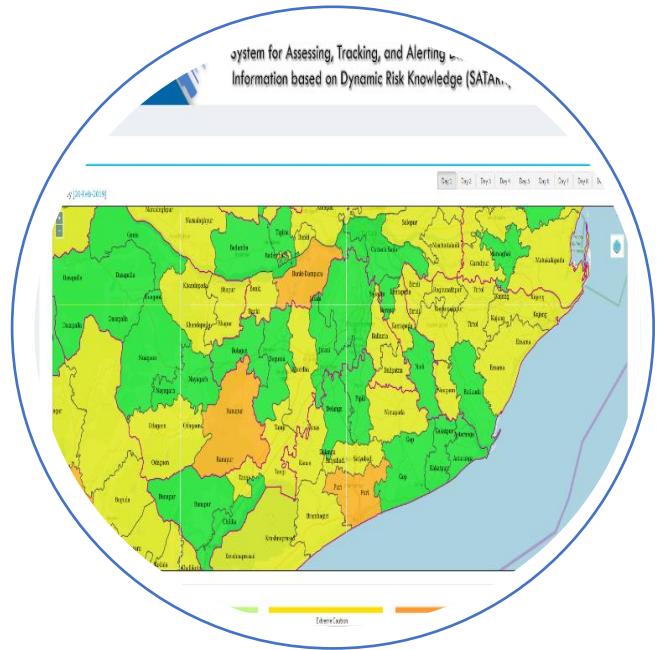
- It will be safer for you to hide in a structure.
- Keep a safe distance from tall objects such as trees, hilltops and utility poles.
- Keep a minimum distance of five meters from other people.
- If you are in an open field, seek shelter in a low area under a thick growth of small trees.
- If in an open field, Crouch down put feet together and place hands over ears.
- Stay indoors for 30 minutes after the last clap of thunder.
- Always perform CPR on the victim of lightning. As it might be the only chance to save them. So, remember to pump the chest and perform the mouth to mouth breathing.

Don't

- Stay away from anything metal: Industrial/farm equipment and other metallic paths that could carry lightning to you from some distance away.
- Stay away from water. Avoid boating or swimming if a storm threatens.
- Avoid isolated sheds or other structures in open areas.

HEATWAVE ADVISORY

- Heatwave advisories are generated based on the IMDs criteria for heat wave conditions prevailing over a region.
- Heat stress are calculated using the heat stress index criteria using maximum day time temperature and relative humidity (used at National Weather Services, NOAA, USA).
- Advisories are generated through bulletins and can be disseminated to focal points in the districts and block.
- The heat wave information is also broadcasted to the SATARK mobile app where users can receive the anticipated heat wave conditions and do's and don'ts in Odia language.



ODISHA STATE DISASTER MANAGEMENT AUTHORITY

Rajiv Bhawan, Unit 5, Bhubaneswar

Heat Wave Bulletin - [20-Feb-2019]

District Summary Table

Temp(°C)	20-Feb	21-Feb	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	01-Mar
Malkangiri	40.25	40.46	41.03	39.91	38.31	36.51	33.45	33.10	33.43	34.85

Blocks Summary Table

Temp(°C)	20-Feb	21-Feb	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	01-Mar
Kailmeila	39.10	39.43	39.13	39.48	39.67	37.56	36.45	30.80	29.99	33.63
Khairput	31.97	32.35	33.34	33.36	33.10	32.04	29.80	27.88	27.69	29.64
Korkunda	33.71	34.27	36.72	38.39	37.03	34.09	33.05	30.38	30.14	32.96
Kudmuluma	39.28	40.36	39.93	41.12	39.62	36.69	35.31	31.30	29.63	33.19
Malkangiri	37.77	38.62	39.21	40.68	39.25	34.87	35.81	30.03	28.63	32.92
Mathili	35.22	35.71	36.33	36.34	36.47	34.78	32.96	29.66	29.30	31.26
Podia	32.77	34.35	37.47	37.84	35.67	34.21	31.09	33.40	30.35	29.86

Legend

Heat Wave		Daily maximum temperature crossed 40 °C and exceeds 5 °C when compared to daily average
Severe Heat Wave		Daily maximum temperature crossed 40 °C and exceeds 7 °C when compared to daily average

Do's and Don'ts

Must for all

- Listen to Radio; watch TV; read Newspaper for local weather news.
- Drink sufficient water - even if not thirsty.
- Use ORS (Oral Rehydration Solution), homemade drinks like lassi, torani (rice water), Lemon water, buttermilk, etc. to keep yourself hydrated.
- Wear lightweight, light-coloured, loose, cotton clothes.
- Cover your head: use a cloth, hat or umbrella.

Employers and workers

- Provide cool drinking water near work place.
- Caution workers to avoid direct sunlight.
- Schedule strenuous jobs to cooler times of the day.
- Increasing the frequency and length of rest breaks for outdoor activities.
- 'Pregnant workers' and 'workers with a medical condition' should be given additional attention.

କର୍ମଚାରୀମାନଙ୍କୁ

- କାର୍ଯ୍ୟସମ୍ପାଦନା ସମୟରେ ପରିମାଣର ପାନୀୟ ଜଳ ରଖନ୍ତୁ
- କର୍ମଚାରୀମାନଙ୍କୁ ଏହି ସମୟରେ ବାହାରକୁ ଯିବା ଭବିଷ୍ୟ ନୁହେଁ
- ଅଧିକ ପରିଶ୍ରମ କରାଯାଇ ନାହିଁ ବାହାରକୁ ଯିବା ପାଇଁ ଅପରାହ୍ଣ ୪ ଘଣ୍ଟା ପରେ କରନ୍ତୁ
- ଏହି ସମୟରେ ବାହାରରେ କାମ କରୁଥିଲେ ଅଧିକ ସମୟ ବିଶ୍ରାମ ନିଅନ୍ତୁ। ଅଧିକ ଲାଭରେ ବାହାରରେ କାମ କରୁଥିଲେ ଅଧିକ ପାନୀୟ ପିଅନ୍ତୁ
- ଗର୍ଭବତୀ ମହିଳା ଓ ଅନ୍ୟ କେହି କର୍ମଚାରୀଙ୍କୁ କାର୍ଯ୍ୟ କରିବା ସମୟରେ, ସେ ଏହି ସମୟରେ କାମ କରୁ ନାହିଁ

ଅନ୍ୟାନ୍ୟ ସାହାଯ୍ୟକାରୀ ମୁକ୍ତ ଉପଦେଶ

- ବିଶେଷ କାମ ନିମ୍ନରେ ଏହି ସମୟରେ ଉପରେ କର୍ମଚାରୀଙ୍କୁ ନେଇ କରନ୍ତୁ
- ଘରକୁ ଯେତେ ସମ୍ଭବ ଅଧିକ ରଖନ୍ତୁ। ଗାରି ସମୟରେ କାର୍ଯ୍ୟ ଓ ଉପରାହ୍ଣା ରଖନ୍ତୁ ଓ ସମସ୍ତ ଆବଶ୍ୟକ ବିଷୟ
- ଦୁଇ ମନାକୁ ଅଧିକ ସମୟ ଦେଇଥିଲେ, ତଳ ଘରେ ରହିବାକୁ ନେଇ କରନ୍ତୁ
- ପଞ୍ଜା, ଡବା କପଡ଼ା ଭଳି ଏକଦିନ ବ୍ୟବହାର କରନ୍ତୁ। ବିନା ଚାହିଦା ରୁ ଅଧିକ ଗାଧୋଇବା କରନ୍ତୁ
- ଯେଉଁ ଅଧିକ ଖରାପ ଲାଗିଲେ, ମୁଖ ସୁଲଭ ହୋଇ ଚାହିଦା ରୁ ଅଧିକ ଅଧିକ ଶୁଣା ହୋଇ କର୍ମ ଲାଗିଲେ ବାହାରରେ କାମ କରନ୍ତୁ ପରାମର୍ଶ କରନ୍ତୁ
- ସମସ୍ତ ପଶୁ ଓ ପକ୍ଷୀ ସ୍ତରଣ କରନ୍ତୁ ଅଧିକ ରୁ ଅଧିକ ପାନୀୟ ପିଅନ୍ତୁ



AGRICULTURE RISK

- This module provides district-wise drought overview by utilizing the status of the following indicators:

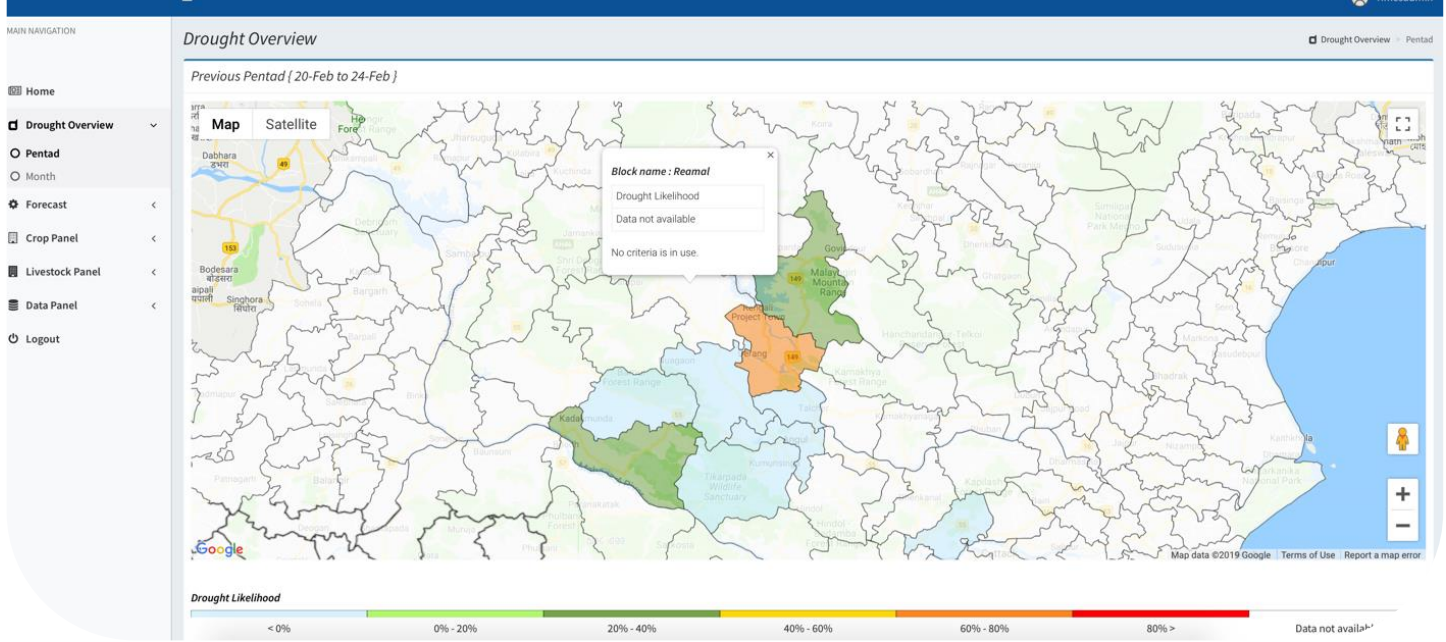
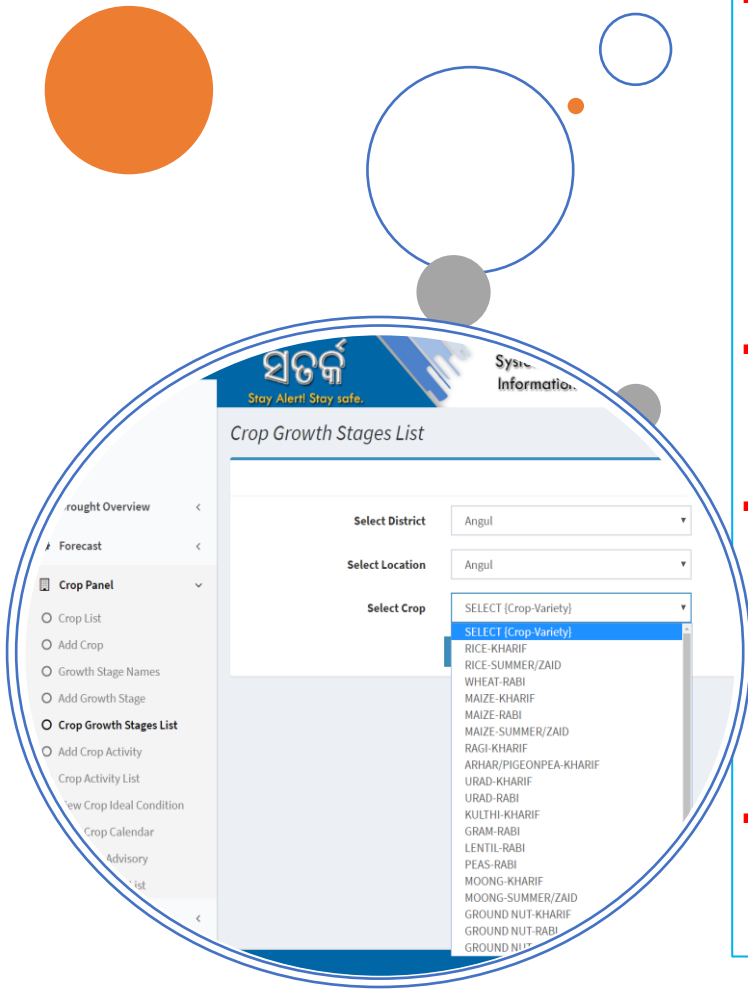
- Observed rainfall (Deficit)
- Crop sown area
- Reservoir water levels
- Ground water index

- Expert users with access to SATARK can upload data every week for all these parameters and a weighting factor to each of the indicators.

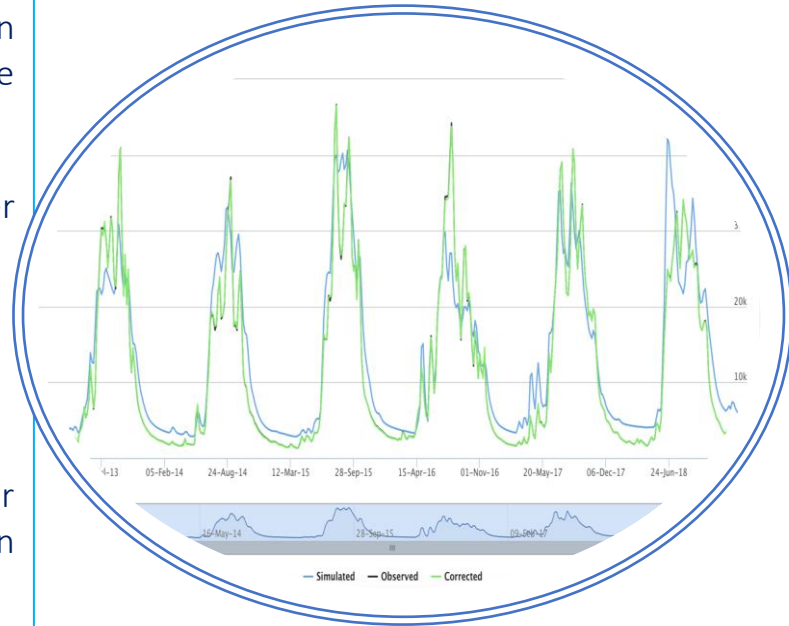
- The system generates drought outlook based on indicators and its weights.


- With the help of district wise and Block wise forecast products (IMD, RIMES, ECMWF) and status of indicators, drought forecasting can also be done for next 10 days.

- The data entry panel to enter and store data related to crop, livestock and pest to use for sensitivity assessment and advisory generation system




- Flood forecasting system is designed to provide water level and discharge information at the river gauge locations, both real time observation and forecast
- Hydrological model (HEC) is under development for:
 - Mahanadi
 - Rushikulya river Basins
- The model is expected to be ready for operational use in the coming 2019 monsoon season for both the river basins.





Stay Alert! Stay safe.


System for Assessing, Tracking, and Alerting Disaster Risk Information based on Dynamic Risk Knowledge (SATARK)



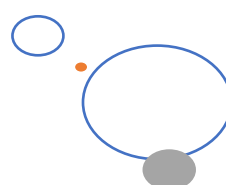
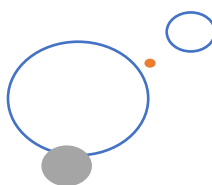
OSDMA

Flood Forecast Overview Overview - Dashboard

HYDROLOGICAL FORECAST
RAINFALL FORECAST



Hydrological stations : ▲ Normal ▲ Warning ▲ Danger ▲ Forecast not available



CONTACT AND EXPOSURE DATABASE

- Contact database lists comprehensive contact details (Email, Phone, Fax) of all the members of Incident Response System (administrators, field level functionaries, first responders) from State to Gram panchayat.

- Both web system and mobile app uses the contact details for risk communication i.e., automatic dissemination of the alerts/warnings and advisories for further action, and to contact during emergencies.

Blocks	GRAM PANCHAYAT NAME	VILLAGE NAME	OFFICER NAME	DESIGNATION	DEPARTMENT	EXTENSION 1	TELEPHONE 1	EXTENSION 2	TELEPHONE 2	FAX EXTENSION 1	
Baragath			INDRAJANI TRIPATHY, OAS (SAG)	COLLECTOR & MAGISTRATE	GENERAL ADMINISTRATION		232040	6646	230041	6646	232840
2 Baragath			TAPIRAM MAJHI, OAS (S)	A.D.M.	GENERAL ADMINISTRATION	6646	235040				
3 Baragath			DEBENDRA KUMAR NANDA	SUB-COLLECTOR	GENERAL ADMINISTRATION	6646	234345				
4 Baragath	Pakamal		DAULAT CHANDRAKAR	SUB-COLLECTOR	GENERAL ADMINISTRATION	6683	223401				
5 Baragath			DASHRATH BHOI	DEPUTY COLLECTOR (EMERGENCY)	GENERAL ADMINISTRATION	6646	232112				
6 Baragath			B.JUGAL KISHOR KUMAR(IPS)	S.P.	HOME	6646	234480			6646	234343
Baragath			JASOBANT SENAPATI	ADDL. SP.	HOME	6646	233448				
Baragath			BIBHUTI BHOI	IIC (TOWN)	HOME	6646	233020				
Baragath			MAHATA NIVIK	IIC(SADAR)	HOME	6646	233880				
Baragath			PRASANNA KUMAR BEHERA	ASST FIRE OFFICER	HOME	6646	233809	6646	234809		

- Exposure database estimates different parameters exposed to different disasters.
- This includes:
 - population (male, female),
 - livestock's,
 - Houses with types and details
 - Agricultural area
 - Critical facilities
- The data is available both at district and block level which can be used for potential risk to different hazards

