

# Global Wildland Fire Network



## Regional South Asia Wildland Fire Network



### **Wildfire Disaster Risk Reduction and Landscape Fire Management in South Asia Region: Experiences from Nepal**



**8<sup>TH</sup>**  
INTERNATIONAL  
WILDLAND FIRE  
CONFERENCE

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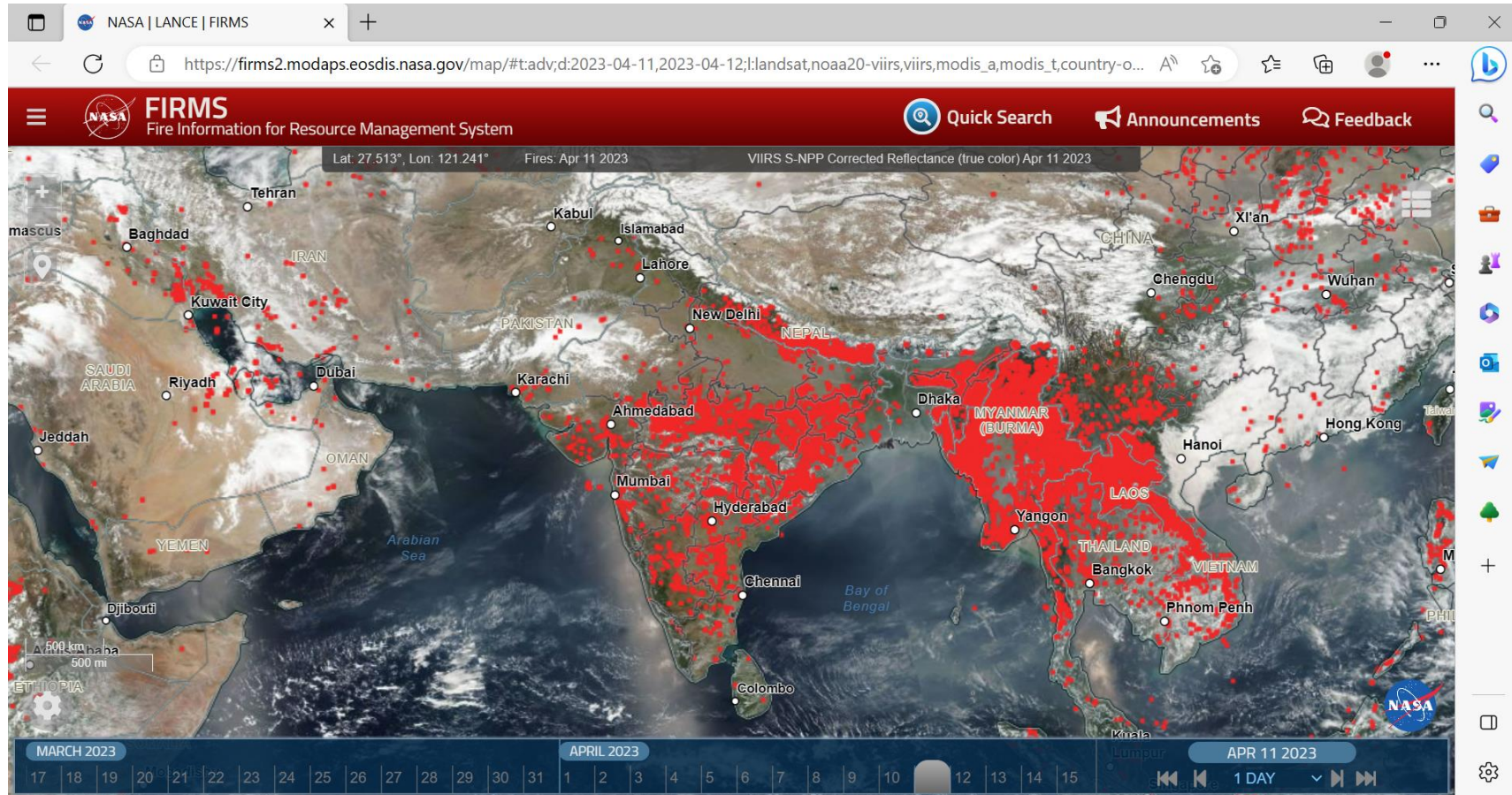
UNDRR-Regional South Asia Wildland Fire Network

## Regional South Asia Wildland Fire Network

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- Forest Fires in South Asia
- General Forest Fire Situation and 2009 and 2021 Fire Episodes in Nepal
- Recent National level Initiatives (Nepal)
- Emerging Issues and Gaps
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# Forest Fires in South Asia in 11 April 2023

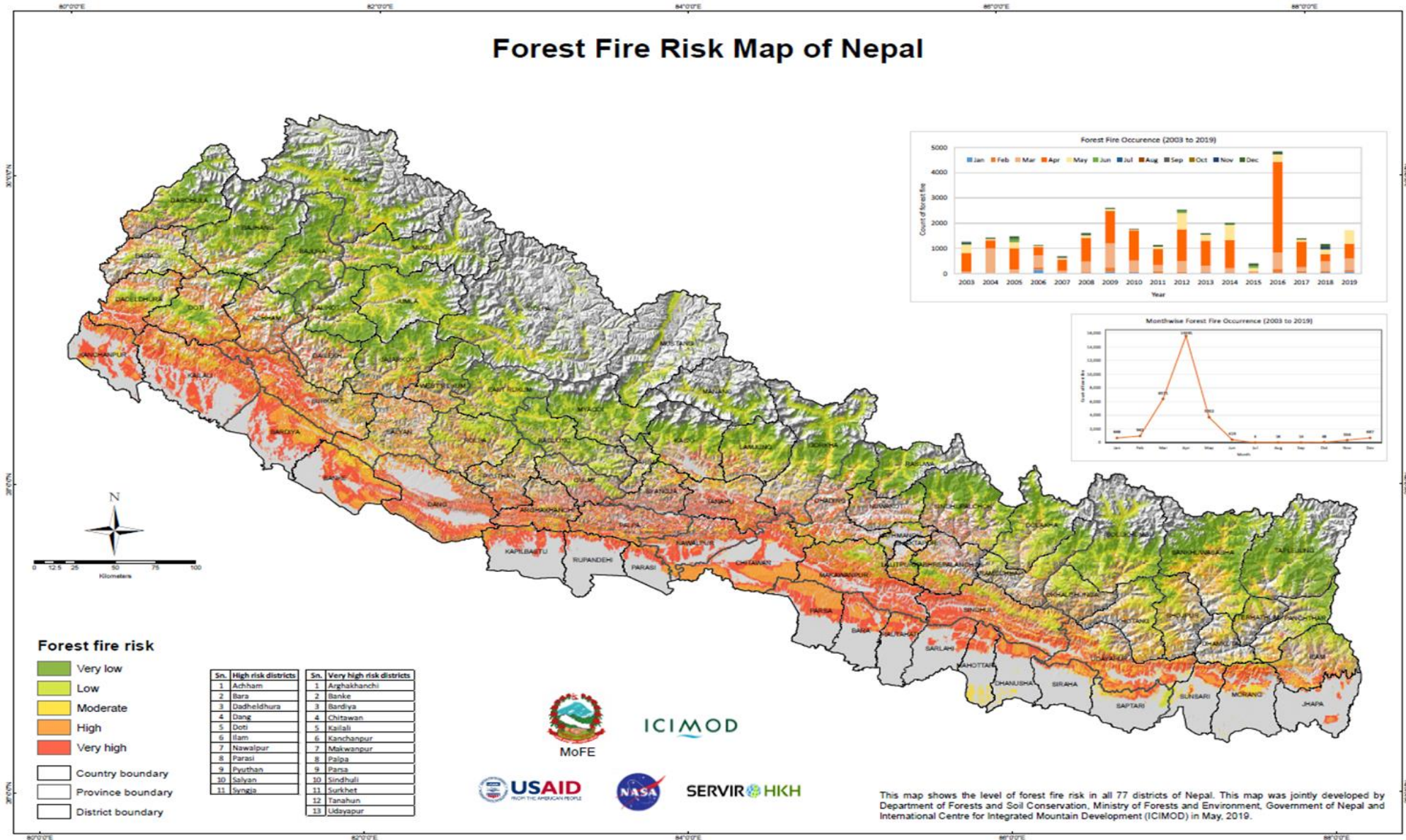


Source: NASA FIRMS Data Source: VIIRS 375m S-NPP

## FOREST FIRES IN NEPAL DURING 2008-2023



# Forest Fire Risk Map of Nepal



### Forest fire risk

- Very low
- Low
- Moderate
- High
- Very high
- Country boundary
- Province boundary
- District boundary

Sn.	High risk districts	Sn.	Very high risk districts
1	Achham	1	Arghakhanchi
2	Bara	2	Banka
3	Dadeldhura	3	Bardiya
4	Dang	4	Chitawan
5	Doti	5	Kailali
6	Ilam	6	Kanchanpur
7	Nawalpur	7	Makwanpur
8	Parasi	8	Palpa
9	Pyuthan	9	Parsa
10	Salwan	10	Sindhuli
11	Syngja	11	Surkhet
		12	Tanahun
		13	Udayapur



MoFE

ICIMOD



SERVIR & HKH

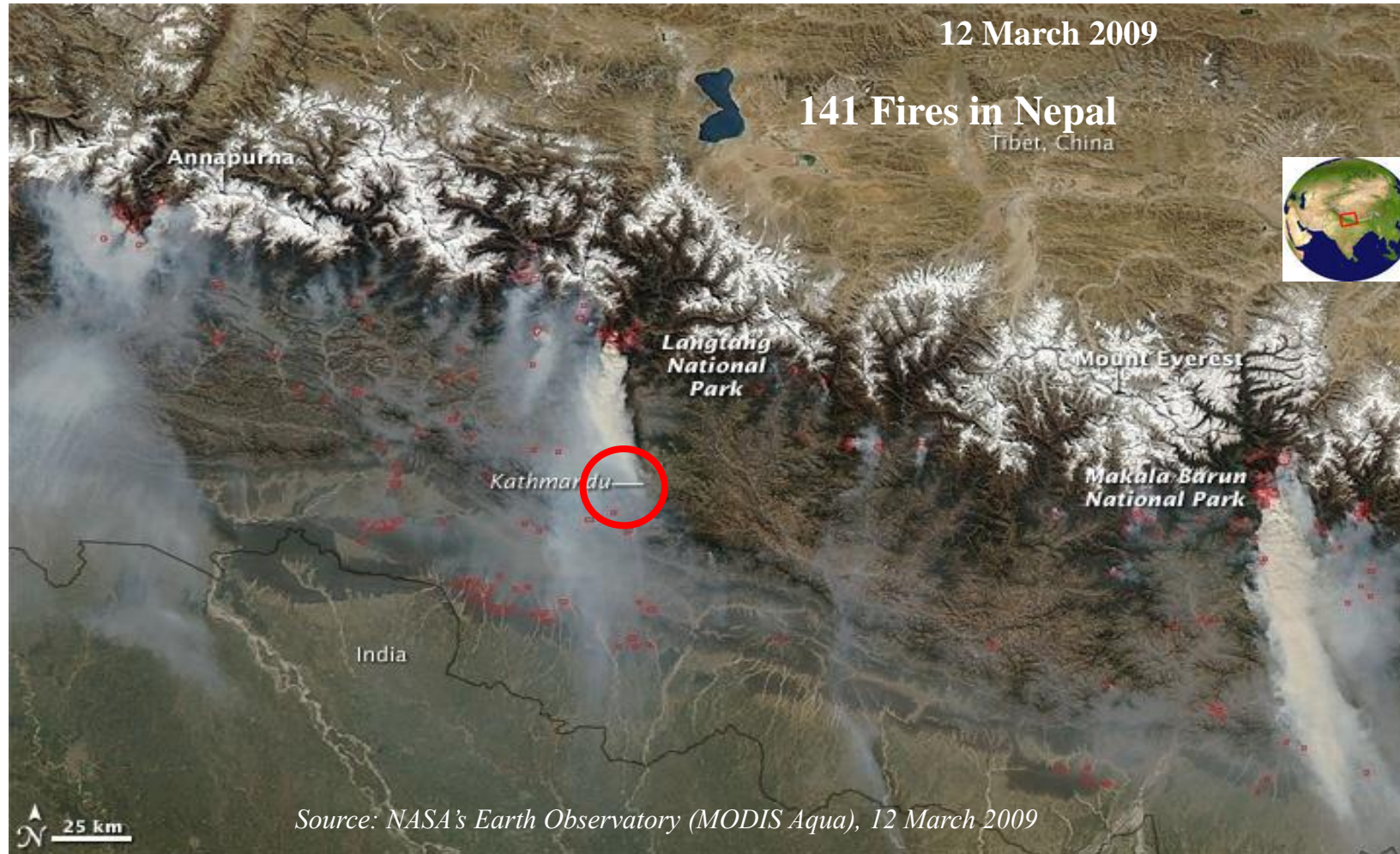
This map shows the level of forest fire risk in all 77 districts of Nepal. This map was jointly developed by Department of Forests and Soil Conservation, Ministry of Forests and Environment, Government of Nepal and International Centre for Integrated Mountain Development (ICIMOD) in May, 2019.

## Monthly Comparison of Fire Incidents from 2008 to 2022 (Nepal)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2008	88	121	537	740	99	1	0	0	2	0	37	42	1667
2009	39	156	576	1191	64	29	3	2	11	6	25	35	2137
2010	70	68	648	1785	94	22	1	3	0	3	12	87	2793
2011	13	66	287	970	111	9	3	3	3	9	31	108	1613
2012	38	91	605	1563	784	146	4	1	1	6	38	69	3346
2013	87	54	412	1144	316	7	0	0	0	0	25	63	2108
2014	41	69	384	1361	362	0	1	1	2	1	17	40	2279
2015	4	43	125	107	157	220	2	4	0	2	13	29	706
2016	144	310	1279	3863	274	7	0	2	4	16	101	234	6234
2017	119	168	205	1343	122	7	0	0	7	8	60	179	2218
2018	373	215	1144	725	251	5	3	0	0	20	99	155	2990
2019	103	100	658	856	2038	95	1	3	0	10	34	52	3950
2020	27	115	122	515	28	3	0	0	0	13	82	306	1211
2021	336	258	1954	3883	29	2	0	0	2	1	50	22	6537
2022	15	52	335	831	44	27	0	1	0	3	48	172	1528

## Fire Disaster Episode 2009 in Nepal



## Fires in 2021

- Total of 6799 forest fires occurred in 2020/2021 fire season which is 10 times more to that of 2019/2020 fire season.
- 11 persons died and 4 persons injured while dosing those fires or trapped by the fires.
- The haze from forest fires covered most of the sky of Nepal, resulting closures of schools in Kathmandu and cancellation of many flights.



# Forest Fires and Air Pollution (2021 Nepal)

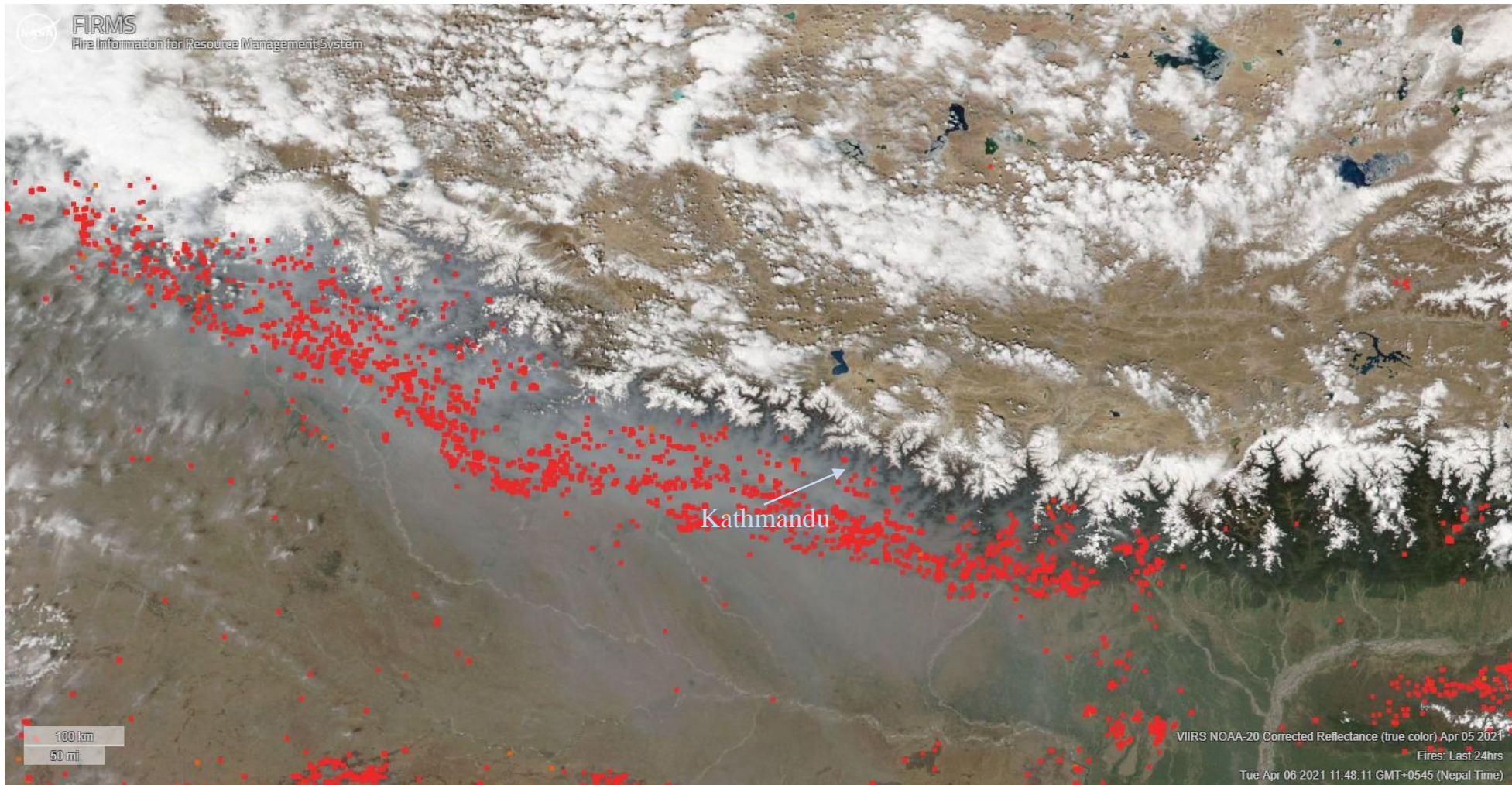
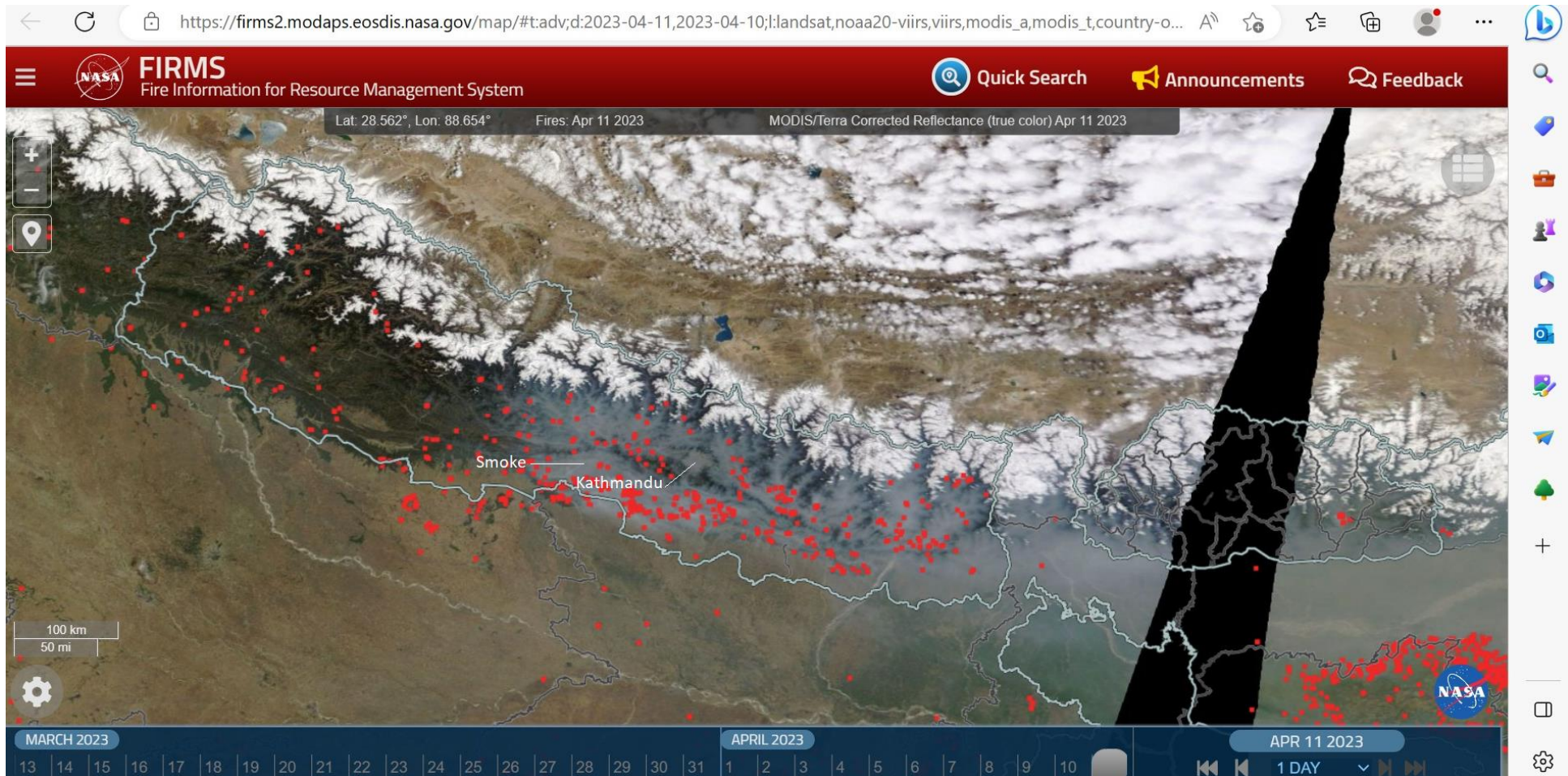


Image acquired in 6 April 2021 (Source: NASA's FIRMS)

# 602 fires in past 24 hours in Nepal in 11 Apr 2023



Source: NASA FIRMS Data Source: VIIRS 375m S-NPP

## Recent National-level Initiatives (Nepal)

- Forest Fire Risk Reduction Training Programme and e-learning module Development
- Forest Fire Detection and Monitoring /EWS/IMS/DSS
- Revision of Forest Fire Management Strategy 2067 and Preparation of Forest Fire Resilience Framework and Action Plan (2023-2030)
- Procurement of Firefighting Tools and Equipment and Distribution to Fire-Risk Areas
- Forest Fire Management Awareness Programme
- Air Pollution Disaster Management National Work Plan
- Forest Fire Damage and Loss Assessment and Risk Evaluation
- Approval of Private Houses Damaged by Fires Reconstruction Relief Procedure 2021

# Forest Fire Risk Reduction Training Programme and e-learning module Development

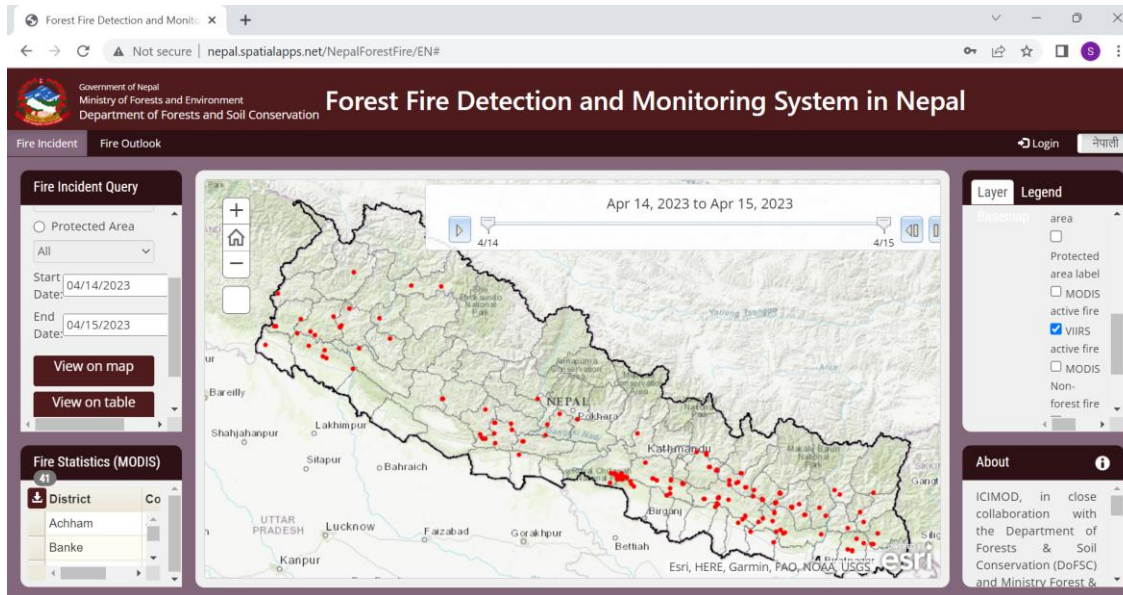
**Includes separate packages for three target groups:**

- i. Security forces and fire fighters,
- ii. Officials and practitioners at MOFE, DEOCs and NDRRMA and
- iii. Volunteers from forest user groups. e-Learning modules coming soon



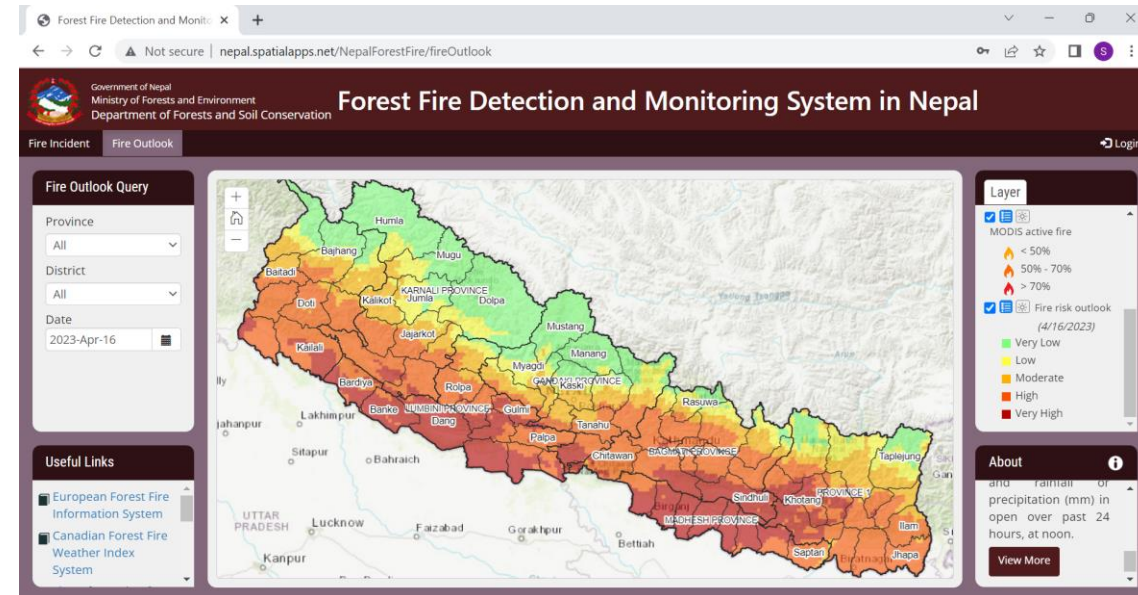
## Recent National-level Initiatives (Nepal)...

- **Forest Fire Monitoring and Detection/EWS/IMS/DSS**



### Forest Fire Detection and Monitoring System

<http://nepal.spatialapps.net/NepalForestFire/EN>



### Forest Fire Outlook System

<http://nepal.spatialapps.net/NepalForestFire/fireOutlook>

## Emerging Issues and Gaps (I)

- Institutional Arrangement in Federal System (in 3-levels)
- Wildfires and Climate Change Interaction (Vicious circle!)
- Wildfires and smoke pollutions
- Wildfires and Watershed Condition Degradation
- Increased soil erosion, landslides and flooding and creating threat to GLOF
- Need for developing a pilot programme/ project
- Wildland Fire Management and REDD++ mechanism

## Emerging Issues and Gaps (III)

- Country should set up forest fire management programme to offset heat-trapping emissions by investing in forestry sector
- Joint regional Cooperation and collaboration to Trans-boundary fires and haze pollution and regional climate
- Enhanced bilateral, multilateral cooperation agreements
- Need for establishment of Regional Wildland Fire Management Resource Center
- Provision to Relief and Compensation to Fire Victims

## Areas for Intervention – Urgent Actions...

### Component 1: Institutionalization of forest fire risk – policy and strategy

- Coordination mechanism
- Organizational structure (staffing) for relevant agencies
- Financing
- Role of federal, provincial, district and local governments
- Role of Private sector, I/NGOs
- National Strategy and Action Plan, white paper



## Areas for Intervention – Urgent Actions...

**Component 2: Record system for ex-post forest fire incidents with loss and damage information, forest fire risk assessment (ex-post and ex-ante)**

- Human loss deaths non existent
- Damage of households, structures and other asset (example agriculture)

## Areas for Intervention – Urgent Actions...

### Component 3: Forest fire early warning system

- What is existing system? Why it is not working?
- Need to integrate hydro-met observation and forecast (temp, ppt, RH, wind, slope, drought conditions into the forecast
- Seasonal and five day forecast.
- Risk communication integrated with N/P/D/LEOC

## Areas for Intervention – Urgent Actions...

### Component 4: Reducing Forest Fire Risk

- Fire line/ fire break
- Incorporating livelihood options in forest fire management (e.g. supporting briquette making, hiring fire patrolling groups during fire season etc.)

## Areas for Intervention – Urgent Actions...

### Component 5: Forest fire response system strengthened

- Aerial forest fire fighting combined with ground response
- Forest fire volunteers – embedded with Community Forest User Group.
- Building capacity for forest fire response – security agencies
- Cross-support with the fire and emergency service

## Areas for Intervention – Urgent Actions...

### Component 6: Strengthening capacity for fire risk management

- Capacity building for security agencies, civilian agencies – federal, provincial, district and municipal governments– NGOs, Private sector
- Knowledge exchange
- e-learning modules for various target groups

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**THANK YOU**