

# Spatial Distribution of Area Affected by Forest Fire in Uttarakhand using Remote Sensing & GIS Techniques

**Year of Starting:** 1999

**Year of Completion:** 2001.

**Funding Agency & Funds Received:** Forest Corporation, Govt. of Uttar Pradesh. Rs. 3.60 lakhs.

**Objectives:** The main objective of this study was to assess the extent and spatial distribution of forest fire affected areas in April, 1999 using remote sensing and GIS techniques.

**Study Area:** Uttarakhand state.

**Data Used:** IRS-1D WiFS & LISS-III Images acquired during March-April, 1999.

**Salient Results:** The total forest fire affected area have been estimated as 900063 ha which is 16.82 % of the total geographical area of Uttarakhand. Bageshwar district has been found to have maximum burnt area of 78335 ha, which is 34.86% of geographical area of the district. No forest fire has been observed in Udham Singh Nagar. The smoke affected areas have also been mapped which will be helpful in knowing environmental effect on areas surroundings the actual forest fire. Over lap areas in satellite images of different dates have indicated that the fire spread was in south-east to north-west direction. The fire spread was generally found to be from river valley to the hill top. The damages due to fire have been observed mainly in chirpine forests followed by Chirpine mixed, Oak mixed, Oak forest and scrub.

## DISTRICT-WISE FIRE-AFFECTED AREA (IN HA) IN UTTARANCHAL

Sl. No.	District	Geographical area of the district	Fire affected areas with smoke	Fire affected areas without smoke	Total affected area	Percentage of Fire affected area	Only smoke affected areas
1.	Uttarkashi	801701	121342	684	122026	15.22	161920
2.	Chamoli	779468	81939	7954	89893	11.53	147779
3.	Dehradun	309698	75466	3276	78742	25.43	93184
4.	Tehri Garhwal	389175	114549	4153	118702	30.50	128064
5.	Pauri Garhwal	528299	39661	38784	78445	14.85	66845
6.	Rudrapur	199475	45764	1007	46771	23.45	81410
7.	Bageshwar	224743	78196	139	78335	34.86	108839
8.	Haridwar	235465	10574	1094	11668	4.96	12826
9.	Almora	315425	57293	25372	82665	26.21	62939
10.	Pithoragah	721610	79862	-	79862	11.07	207442
11.	Champawat	177000	18696	40440	59136	33.41	12593
12.	Nainital	412288	2809	51009	53818	13.05	3833
13.	Udham Singh Nagar	254953	-	-	-	-	-
	<b>Total</b>	<b>5349300</b>	<b>726151</b>	<b>173912</b>	<b>900063</b>	<b>17.83</b>	<b>1087674</b>

The study would give realistic picture of such extensive forest fire and its resultant damages which would ultimately help in forest and wildlife management. Such study would also help in identification of forest fire risk zones. The real time data could be extremely helpful in fire fighting processes.

**Report No. :** Report submitted in the year 2000.

**Recommendation/Special Achievements:** Real time information on forest fire on a regional scale was provided to the Forest Dept. Later, realistic estimates of burnt area on large scale have been provided. Areas effected by smoke were also identified indicating impact on the surrounding environment.

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