

FIRE Index Web-Based Calculation Manual

Name of evaluator
Name of fire
Date of fire



Effects on Landscape and Vegetation



General Environmental Impacts



Regeneration Potential – Vegetation Recovery



Firefighting / Wildfire Confrontation



Casualties and Fatalities



Destructions / Damages on Infrastructure



Economic Losses

Authors:

Palaiologos Palaiologou: Palaiologou.p@aegean.gr

Vasilis Kopsachilis: vkopsachilis@geo.aegean.gr

University of the Aegean – Department of Geography



UNIVERSITY OF THE
AEGEAN

General Instructions

- The assessor is the person who will conduct the assessment of the Fire Effects for a particular wildfire event.
- All seven categories must be completed for a successful estimation of the FIRE Index.
- All criteria that comprise each category must be completed by selecting one of the predefined choices, each placed on a predefined value on a scale from 0 to 100. Few exceptions apply for criteria with certain choices that have been excluded or are not available by design.
- The assessor can provide any value through the predefined 0-100 scale by selecting the "User defined value" radio button and providing a value on the scale of 1-100. Some criteria and the general multipliers do not have a predefined value choice.
- In case a criterion has two available choices that can both describe a certain fire effect with e.g., values 60 and 100, then the assessor can choose either the middle value of the two choices (80) or, a value that is closer to one choice depending on his/her judgment for the current situation (70 or 90).
- For some criteria, the assessor can describe e.g., for the criterion Probabilities of Land Degradation, Erosion and Soil Losses, what percentage of the burned area has none, low, moderate or high probabilities of erosion, allowing variation of conditions on the landscape to be reflected in the allocation of the criterion value. The sum in the value allocation should not exceed 100%, otherwise an error will occur (see error messages at the bottom left). Then, the percentage fraction (user provided value divided by 100) provided for each choice is multiplied by the relevant score of each choice (e.g., 0.5×100 for the choice High + 0.5×20 for the choice Low). Another example is for the Landscape and Vegetation fire effects category, criterion Protected Forested Area Type, where an old-growth forest under protection status will receive a value of 55 out of 100 if it comprises <10% of the total burned area, but 100 if it comprises >50%.

Web Application Tutorial

- Start by clicking the “New Evaluation” button in the Introductory Page. This action will clean the memory of any previous evaluations.
- By clicking the “Finish Evaluation” button, the scores of each category will be combined to estimate the FIRE Index value, providing the scores of each of the seven fire effects categories as well.

Economic Losses

- When the New Evaluation button has been hit, all category scores will be zeroed except for two which will receive negative values.

Economic Losses

FIRE EFFECT CATEGORY	VALUE	WEIGHTED VALUE
Effects on Landscape and Vegetation	-2.010578	-0.2814809
General Environmental Impacts	0	0
Regeneration Potential – Vegetation Recovery	0	0
Firefighting / Wildfire Confrontation	-1.38903	-0.1944642
Casualties and Fatalities	0	0
Destructions / Damages on Infrastructure	0	0
Economic Losses	0	0
Kapa Fire Index Score		-0.4759451

- Start the evaluation by clicking on the first category “Effects on Landscape and Vegetation”. You can choose any category to start with, but ensure that the “Save evaluation category” button has been hit before you click the Home button to save your progress.

0	0		
<input type="radio"/> >10-100 ha	<input type="radio"/> >100-500 ha	<input type="radio"/> >500-2000 ha	<input type="radio"/> >2000
<input type="button" value="Previous category"/>	<input type="button" value="Home"/>	<input type="button" value="Next category"/>	<input type="button" value="Save evaluation category"/>
<input type="button" value="View evaluation category"/>			

- We suggest to regularly use the Save evaluation category button to save your progress. New values will replace the older choices. In addition , this button will reveal hidden choices for the Category “Effects on Landscape and Vegetation” and MUST be pressed if you provide any value >1% for either choice (Mixed or broadleaf forest OR Conifer forest) of the Dominant Landuse / Landcover Types

Criterion. The Save button will also open a menu for the Protected Forested Area Type Criterion to define the Ratio of protected forested area vs. non-protected area inside the burned perimeter.

- For the Dominant Landuse / Landcover Types Criterion provide values in the boxes below each landcover type. ENSURE that the score is 100. Select also the type of Conifer Forest or Mixed/ Broadleaf forest from the choices that will open after you click Save.

	40	60 (Moderate)	80	100 (High)	
ural		<input type="radio"/> Highlands	<input checked="" type="radio"/> Wildland-Urban Interface	<input type="radio"/> Mountainous Areas	<input type="radio"/> User defined value: <input type="text"/>
Shrubland	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
	<input type="radio"/> Quercus spp. or Olea Sylvestris	<input type="radio"/> Juglans regia or Castanea spp.	<input type="radio"/> Fagus spp. or Cold climate broadleaf evergreens	<input checked="" type="radio"/> Mixed conifer/broadleaf forest	
	<input type="radio"/> Pinus brutia or Pinus halepensis	<input type="radio"/> Juniper spp. or Cypresses spp	<input type="radio"/> Pinus nigra or Pinus pinea	<input checked="" type="radio"/> Abies spp. or Mixed Fir/Pine forest or Pinus sylvestris or Pinus heldreichii	
	<input type="radio"/> Lake or seashore forests	<input checked="" type="radio"/> Recreational forests	<input type="radio"/> National parks	<input type="radio"/> Old-growth forest	
	<input type="radio"/> 21-30%	<input type="radio"/> 31-40%	<input checked="" type="radio"/> 41-50%	<input type="radio"/> >50%	
	<input type="radio"/> Visibility reduction inside medium sized populated areas	<input checked="" type="radio"/> Visibility reduction inside large sized populated areas	<input type="radio"/> Severe smoke impacts inside medium sized populated areas	<input type="radio"/> Severe smoke impacts inside large sized populated areas	<input type="radio"/> User defined value: <input type="text"/>
		moderate <input type="text"/>		high <input type="text"/>	
	<input type="radio"/> >100-500 ha	<input type="radio"/> >500-2000 ha	<input checked="" type="radio"/> >2000-7000 ha	<input type="radio"/> >7000 ha	

Category

- Define also the Ratio of protected forested area vs. non-protected area inside the burned perimeter if you select any value other than None in the Protected Forested Area Type Criterion.
- Finally, select a value from the General Multiplier. Radio buttons at the score 10 equal to 0.5 multiplier value, 20 to 1, 40 to 1.5, 60 to 2, 80 to 2.5 and 100 to a multiplier equal to 3. This will multiply the SUM by that factor; thus, the Final Value is the sum of weighted values multiplied by the multiplier.
- Click the View evaluation category button to retrieve the Fire Effects Category Value based on your choices. CHECK to see if everything has been filled appropriately.
- Click Home button to return to the main page. Alternatively, you can choose to navigate to the Next fire effects category.

- Once all categories have been completed, click on Finish Evaluation. You can click any time you will, but only after the assessment of each category has been completed and SAVED you will receive the value for that category.



Effects on Landscape and Vegetation



General Environmental Impacts



Regeneration Potential – Vegetation Recovery



Firefighting / Wildfire Confrontation



Casualties and Fatalities



Destructions / Damages on Infrastructure



Economic Losses

Finish Evaluation New Evaluation

FIRE EFFECT CATEGORY	VALUE	WEIGHTED VALUE
Effects on Landscape and Vegetation	23.00897	3.221256
General Environmental Impacts	99.99999	14
Regeneration Potential – Vegetation Recovery	100	14
Firefighting / Wildfire Confrontation	66.62363	9.327309
Casualties and Fatalities	32.09831	5.135729
Destructions / Damages on Infrastructure	23.44827	3.282757
Economic Losses	31.57617	4.420664
Kapa Fire Index Score		53.38772