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+ / Analyze projected wildfire risk data for the ...

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Analyze projected wildfire risk data for the Mid-Century period (2045 - 2054) to understand the potential trends in fire danger in Las Vegas, NM.

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[PDF] National Significant Wildland Fire...



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Risk of very large fires could increase sixfold by mid-...



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❖ Answer

Las Vegas, NM is likely to face increased wildfire risk by mid-century (2045-2054) due to several factors:

1. Increased potential for very large fires: The risk of very large fires (top 10% of fires) could increase up to sixfold in parts of the West, including New Mexico, by mid-century (2041-2070) compared to the recent past (1971-2000) ³.
2. Climate change impacts: Warming temperatures, more heat waves, and diminished soil moisture during the summer are expected to contribute to increased fire danger ³.



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conditions, combined with historic fire suppression practices, may lead to more frequent large fire events.

3. Extended fire seasons: Climate change is projected to both intensify fire-friendly weather conditions and lengthen the season during which very large fires tend to spread ³.
4. Drought and fuel conditions: The combination of warming temperatures and below-normal precipitation in the Southwest may lead to drier fuels and increased fire potential ¹.
5. Watershed vulnerability: Las Vegas, NM relies on a single surface water source (the Gallinas River watershed), making it particularly vulnerable to wildfire impacts on its water supply ². The 2022 Hermit's Peak/Calf Canyon Fire demonstrated the severe consequences of large-scale fires on the city's water resources.

While specific data for Las Vegas, NM is not provided, the overall trend for the western United States suggests a significant increase in fire danger. To mitigate these risks, it will be crucial for Las Vegas to implement preventive measures, such as watershed management, infrastructure upgrades, and improved emergency response planning.

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FireWeatherIndex_Wildfire.csv

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Analyze the provided wildfire risk data for trends in fire danger during the Mid-Century period (2045-2054) ^

🔗 Programming ^

python



```
import pandas as pd

# Load the data from the provided CSV content
data = {
    "Crossmodel": ["R382C098", "R438C055",
"R395C128", "R411C070", "R418C086"],
    "wildfire_autumn_Hist": [0.21706600,
0.19325100, 0.16187499, 0.06625510, 0.21585201],
    "wildfire_autumn_Midc": [0.19020601,
0.23761301, 0.17974000, 0.08283200, 0.25494000],
    "wildfire_autumn_Endc": [0.18054999,
0.30698001, 0.28190601, 0.13149101, 0.29199001],
    "wildfire_spring_Hist": [0.23325500,
0.26497099, 0.43935099, 0.14086400, 0.61175901],
    "wildfire_spring_Midc": [0.25685900,
0.43022999, 0.63834703, 0.20844901, 0.76533502],
    "wildfire_spring_Endc": [0.33532199,
0.67529500, 1.07511997, 0.37450501, 1.30107999],
    "wildfire_summer_Hist": [0.02665600,
1.00634003, 1.47315001, 0.55820203, 1.23318005],
    "wildfire_summer_Midc": [0.01219060,
1.03327000, 1.44737995, 0.58379698, 1.18492997],
    "wildfire_summer_Endc": [0.00812513,
1.29201996, 2.03485990, 0.80664498, 1.40502000],
    "wildfire_winter_Hist": [0.39805350,
0.11734568, 0.09368313, 0.08972839, 0.19623457],
    "wildfire_winter_Midc": [0.30490124,
0.11226337, 0.09896296, 0.06769959, 0.25189712],
    "wildfire_winter_Endc": [0.18708122,
0.16651929, 0.11026432, 0.06815769, 0.29552639]
```



```

}

df = pd.DataFrame(data)

# Calculate the average change in wildfire risk
for each season from historical to mid-century
seasonal_changes = {}
seasons = ["autumn", "spring", "summer",
"winter"]

for season in seasons:
    hist_col = f"wildfire_{season}_Hist"
    midc_col = f"wildfire_{season}_Midc"
    avg_change = (df[midc_col] -
df[hist_col]).mean()
    seasonal_changes[season] = avg_change

seasonal_changes

```

Output

python

```

{'autumn': 0.018206384000000003,
 'spring': 0.12180401199999999,
 'summer': -0.007192124000000031,
 ...

```



Summarize the analysis results and potential implications for wildfire risk in Las Vegas, NM



Sources

FireWeatherIndex_Wildfire.c

FireWeatherIndex_Wild...





Answer

Based on the analysis of the FireWeatherIndex_Wildfire.csv data for Las Vegas, NM, the following trends in wildfire risk can be observed for the Mid-Century period (2045-2054):

Seasonal Changes in Wildfire Risk

1. Spring: The most significant increase in wildfire risk is projected for the spring season, with an average increase of 0.122 in the Fire Weather Index (FWI) from the historical period to mid-century.
2. Autumn: A slight increase in wildfire risk is expected during autumn, with an average FWI increase of 0.018.
3. Winter: A small decrease in wildfire risk is projected for winter, with an average FWI decrease of 0.012.
4. Summer: The summer season shows a minimal decrease in wildfire risk, with an average FWI decrease of 0.007.

Key Observations

- The spring season appears to be the most concerning, with the largest increase in wildfire risk. This could potentially lead to an earlier start to the fire season.
- The autumn season also shows a slight increase in risk, which might result in a longer fire season extending into the fall months.
- Winter and summer show slight decreases in risk, but these changes are relatively small compared to the increases in spring and autumn.
- The overall trend suggests a shift in the timing of wildfire risk, with a greater emphasis on spring and autumn rather than the traditional





summer fire season.

Implications

1. Emergency preparedness efforts may need to be adjusted to account for the increased risk in spring and autumn.
2. Forest management practices, such as prescribed burns and fuel reduction, might need to be re-evaluated to address the changing seasonal risk patterns.
3. Public awareness campaigns about fire safety may need to be expanded to cover a longer period of the year, especially focusing on spring and autumn.
4. Water resource management strategies may need to be adapted to ensure adequate resources are available for firefighting during the extended risk period.

It's important to note that these projections are based on averages and may not account for extreme events or year-to-year variability.

Continuous monitoring and updated assessments will be crucial for effective wildfire management in Las Vegas, NM.

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