

Greenhouse gas and carbon tracking exercise



Request

The State of Washington legislature requests a calculation of greenhouse gases produced from the 2015 wildfire season in eastern Washington. How could you use the FFT to complete this request?



Information available

- **Acres burned from remote sensing by cover type:**
 - **Dry ponderosa pine/Douglas-fir forest type: 450,000 acres**
 - **Sagebrush shrubland fuel bed type: 300,000 acres**
 - **Wheat grass/cheat grass fuel bed type: 200,000 acres**
- **Environmental variables representing wildfire conditions:**
 - **1000-hr FM: 10%**
 - **Duff moisture: 30%**
 - **Shrub blackened: 95%**
 - **Crown consumption: 50%**
 - **Pile consumption: 95%**



Fuel and Fire Tools

- **Open FFT, in the fuel bed selection screen, click on Ecoregion and select: “temperate desert”**
- **Click on vegetation type and select “conifer”. Locate fuel bed Interior ponderosa pine-Douglas-fir forest fuel bed # 67 and move to box on the right**
- **Click on vegetation type and select “shrubland”. Locate fuel bed sagebrush shrubland #56 and move to the box on the right**
- **Click on vegetation type and select “grassland”. Locate fuel bed wheat grass-cheat grass # 57 and move to the box on the right**



Create a Unit



- Click on save/edit unit box
- Name the unit “greenhousegases”
- Enter total acres: 950,000
- Change percentages of fuel bed coverage to:
 - Ponderosa pine/Douglas-fir: 47%
 - Sagebrush: 32%
 - Grassland: 21%
- Click on screen to tally to zero

Environmental variables

- Click on lower right tab “environmental inputs”
- Click on “Consume” and environmental variables boxes that need to be filled will light up. Fill in the appropriated variables
 - 1000-hr FM: 10%
 - Duff moisture: 30%
 - Litter moisture: 5%
 - % shrub consumption 95%
 - % crown consumption 50%
 - % pile consumption 95%
 - Season: Summer
- Save environmental variables and name it “greenhousegases”
- Click Consume “Run”



View Reports



- Click “Consume” tab
- Click Emissions under “Unit”
- Total emissions for critical green house gases (CO₂, CH₄) will be displayed along with other pollutants

| Pollutant | Emissions (Tons) |
|-----------|------------------|
| ch4 | 51527.33 |
| co | 1119306.48 |
| co2 | 21664345.06 |
| nmhc | 40882.58 |
| pm | 209206.96 |
| pm10 | 153135.49 |
| pm25 | 134356.22 |

- Click on the FCCS tab to see fire behavior, fuel loading and total carbon represented by the fuel beds burned during the wildfires

A large, billowing white plume of smoke or ash rises from a mountain range against a clear blue sky. The plume is dense and textured, with a smaller, similar plume visible in the distance. The foreground shows rugged, rocky terrain with sparse evergreen trees.

Questions?