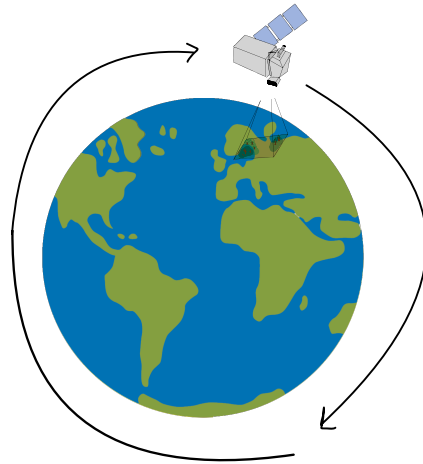
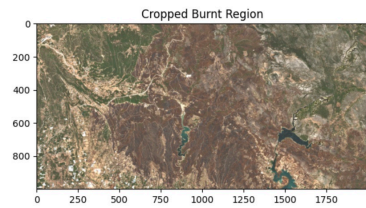


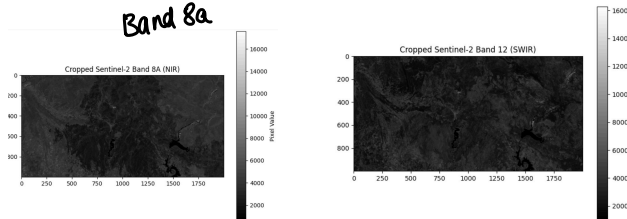
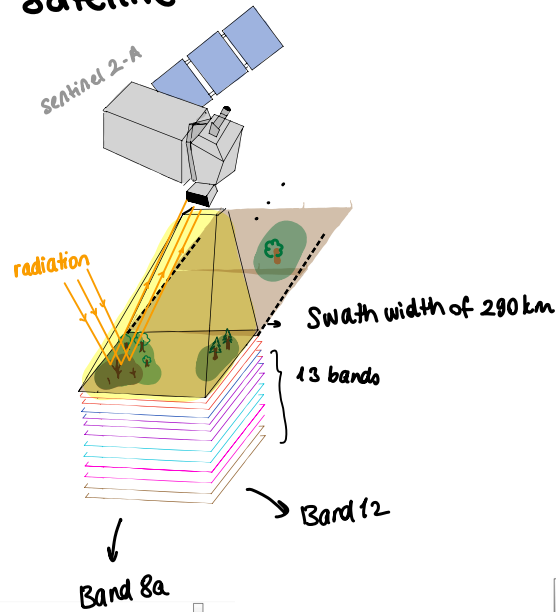
Orbit



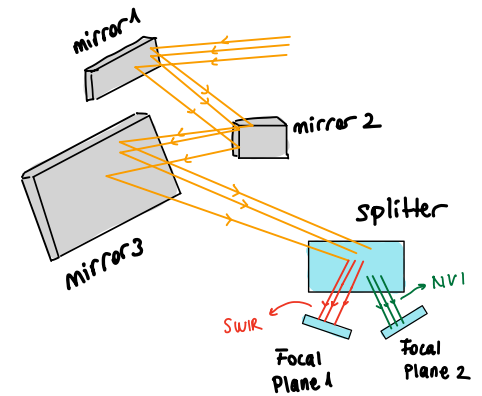
Band 3 + Band 4 + Band 2 (RGB)



Satellite



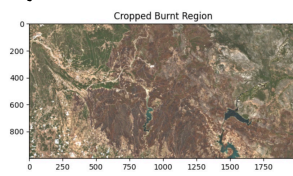
3 mirror + focal Plane System



→ Light is collected by a three mirror telescope, then focused onto Two Focal Plane Assemblies (S2 mission, n.d.).

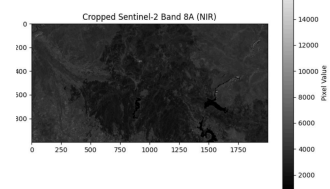
Methodology Summary

(Sentinel 2A Data)

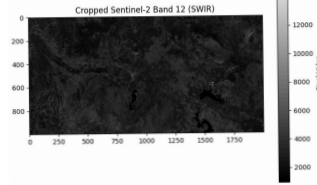


① Extract Data

NIR



SWIR

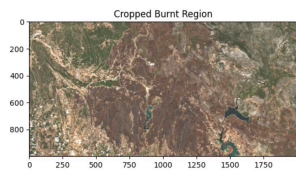


$$NBR = \frac{NIR - SWIR}{NIR + SWIR}$$

② Calculate Index

K-Means

input:

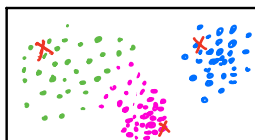


↓ NBR values (unlabelled)



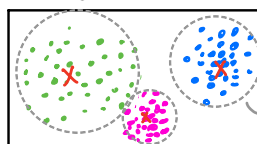
↓ Kmeans Clustering

Iteration 1:



x = 3 clusters

⋮
Iteration nth:



output:

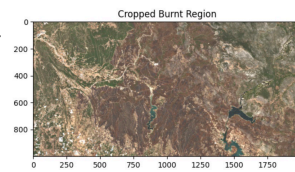
x = 3 clusters

→ round cluster

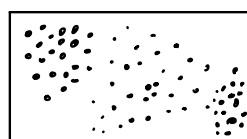
(process repeats until convergence)

Gaussian mixture models

input:

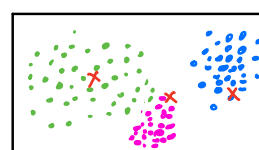


↓ NBR values (unlabelled)



↓ GMM

Iteration 1:

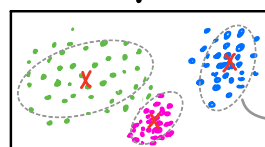


→ Initialization

x = 3 labels

Output

(final iteration)



■ = covariance

x = 3 labels

→ cluster with different shapes