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Common borders. Common solutions.

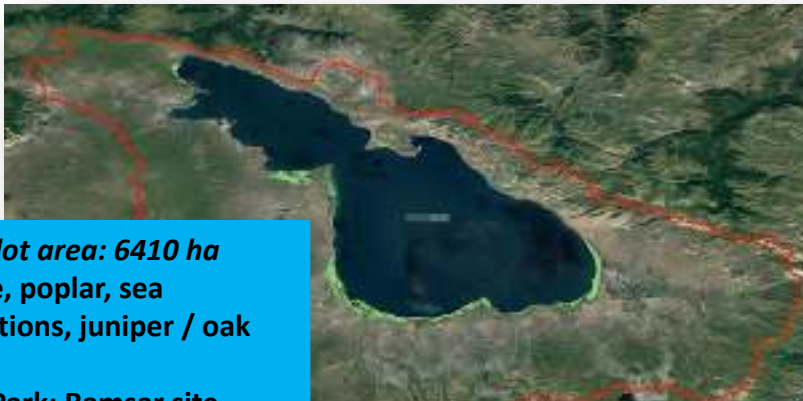
Assessment of forest cover changes and their consequences for the environment

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Irakli Matcharashvili
Odessa , 20.07. 2022 (online)



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The main goal - to evaluate the dynamics of tree cover loss and gain and its consequences on the environment



- Forest cover in Pilot area: 6410 ha
- Forest types: Pine, poplar, sea buckthorn plantations, juniper / oak sparse forests
- Status: National Park; Ramsar site



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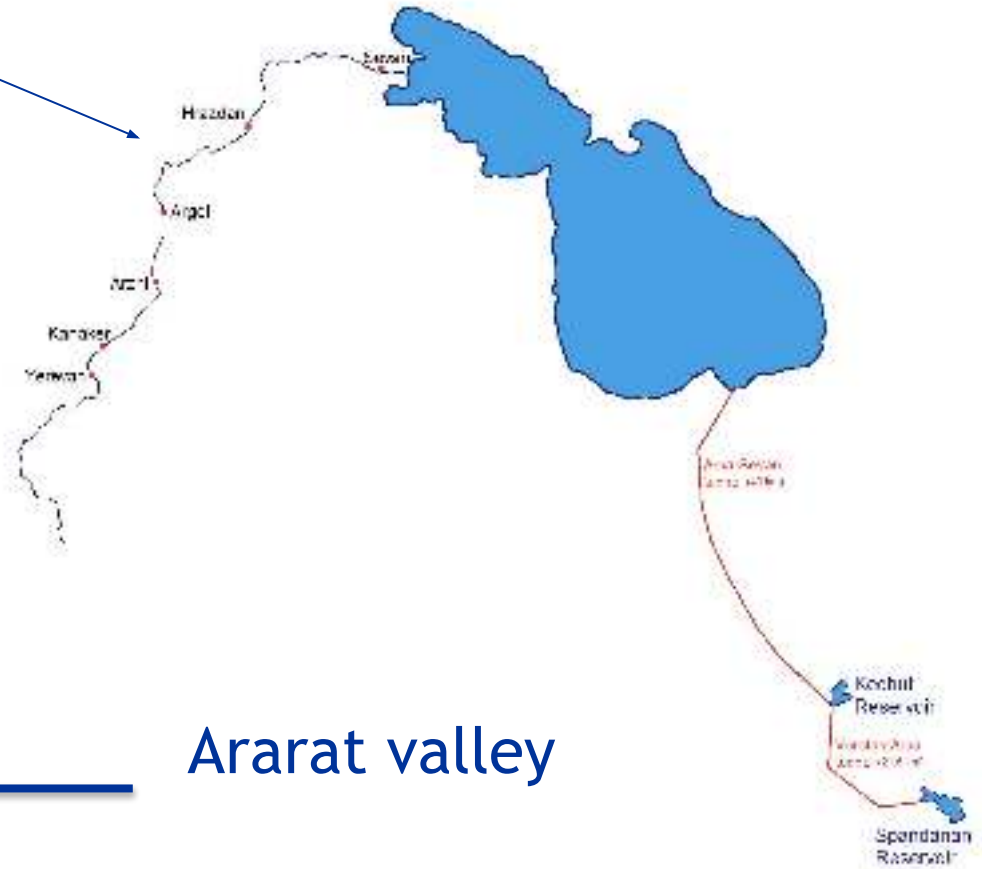
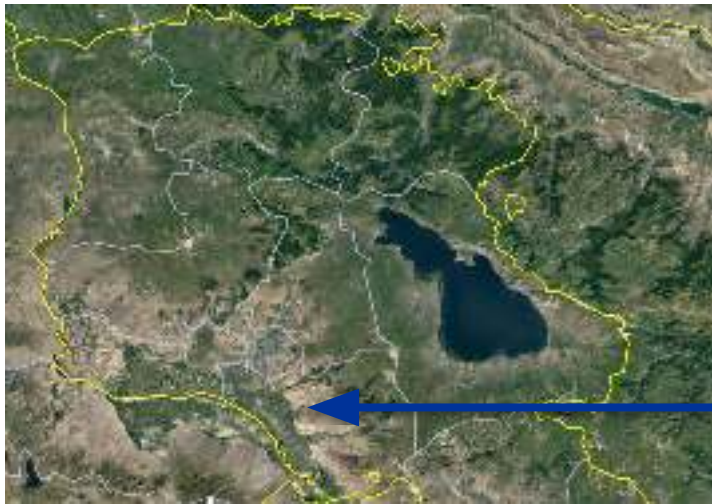
Armenian Pilot area.

- Lake level- artificially lowered by 18 meters for 3-4 decades (1930-70s); another 2 meters at the end of 20th century (1990-2000)
- Volume of water- decreased from 58 billion m³ to 32 billion m³
- Recently - Hectares of forested area has been waterlogged as a result of the lake level increase. Coastal zone cleaning actions are currently underway.



Sevan-Hrazdan Cascade

Construction started in 1931



Ararat valley

Armenian Pilot area.

Analysis	L5, L8, Sentinel-2 2009 to 2020 NDVI, Bandsets
Validation	Field trips



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Armenian Pilot area.

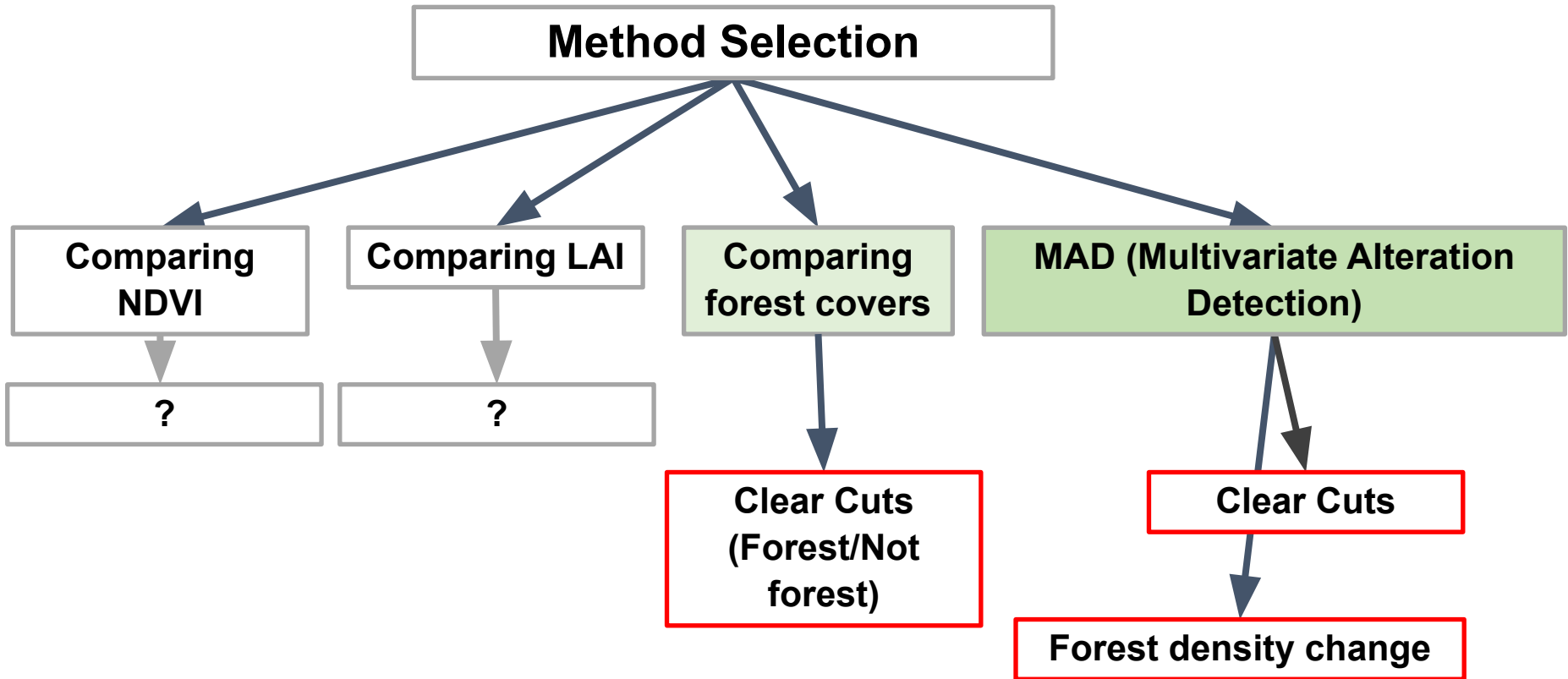


Forest



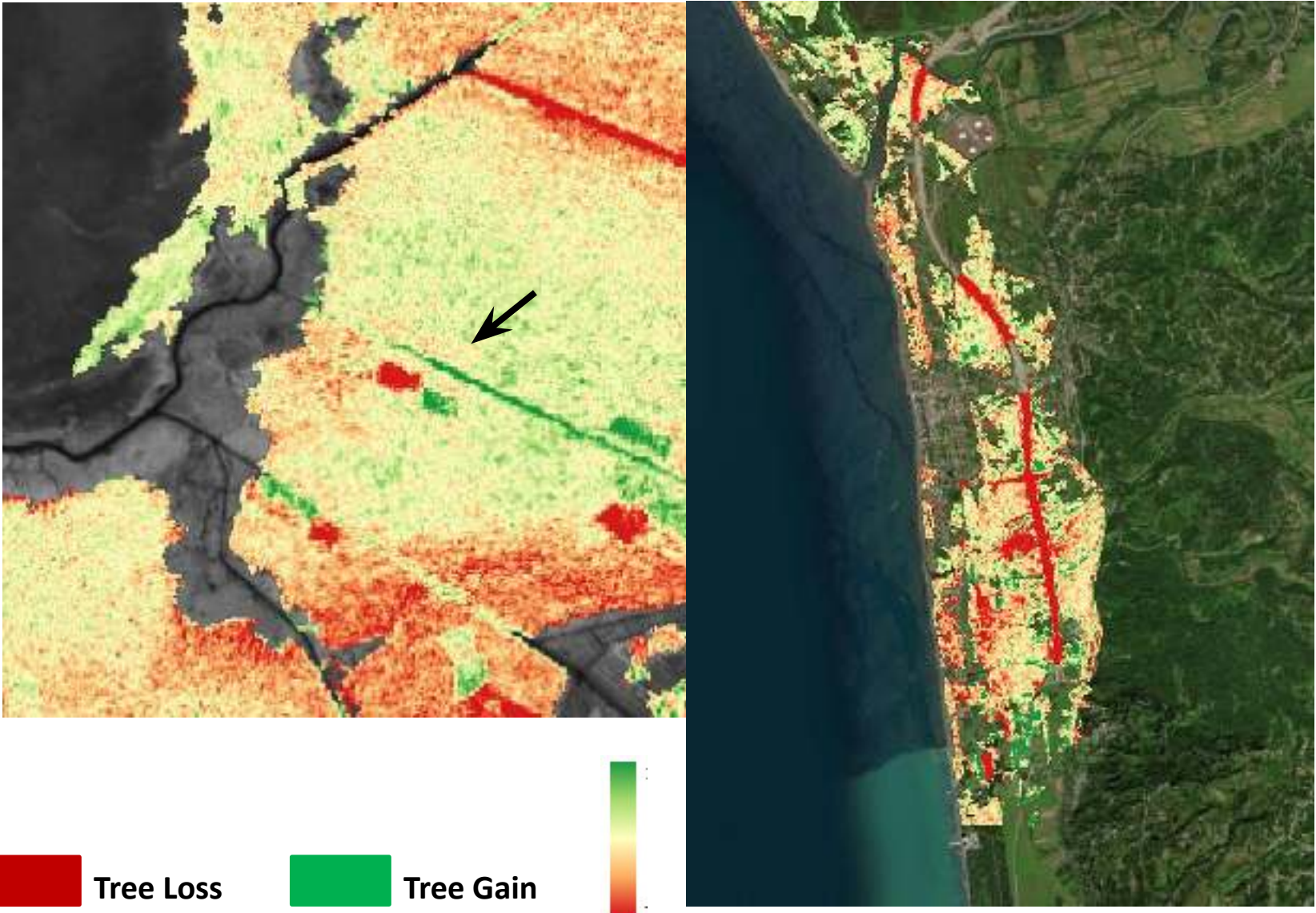
Forest, shrubs

Georgian Pilot area.

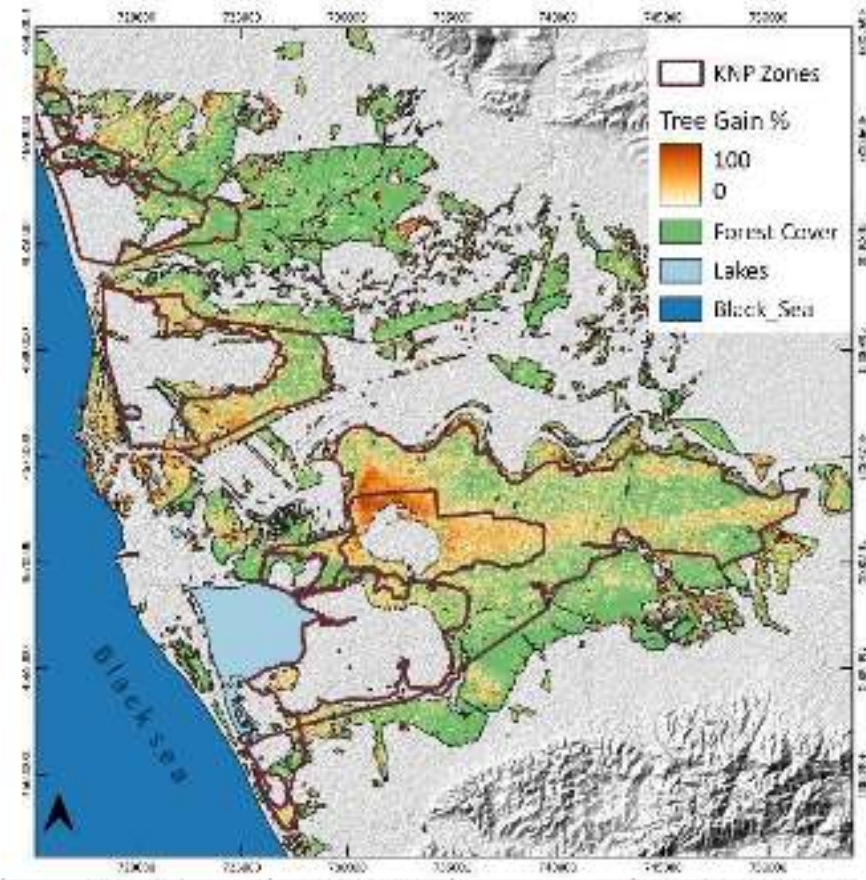
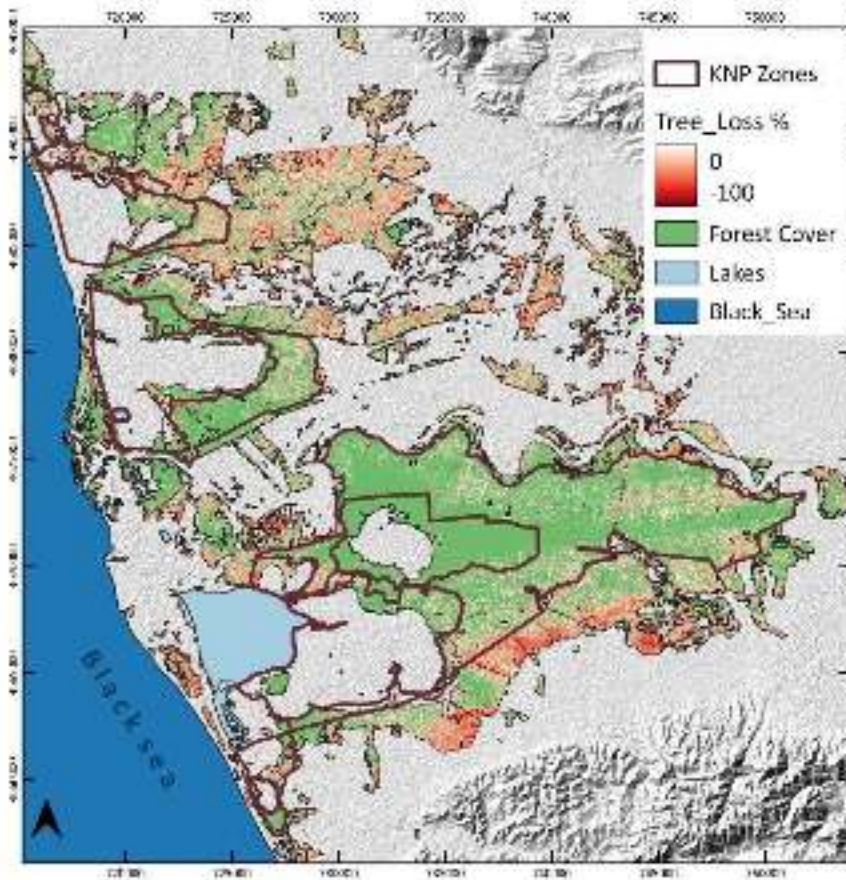


MAD (Multivariate Alteration Detection)

The best model was developed by the MAD algorithm - compares all bands with all bands



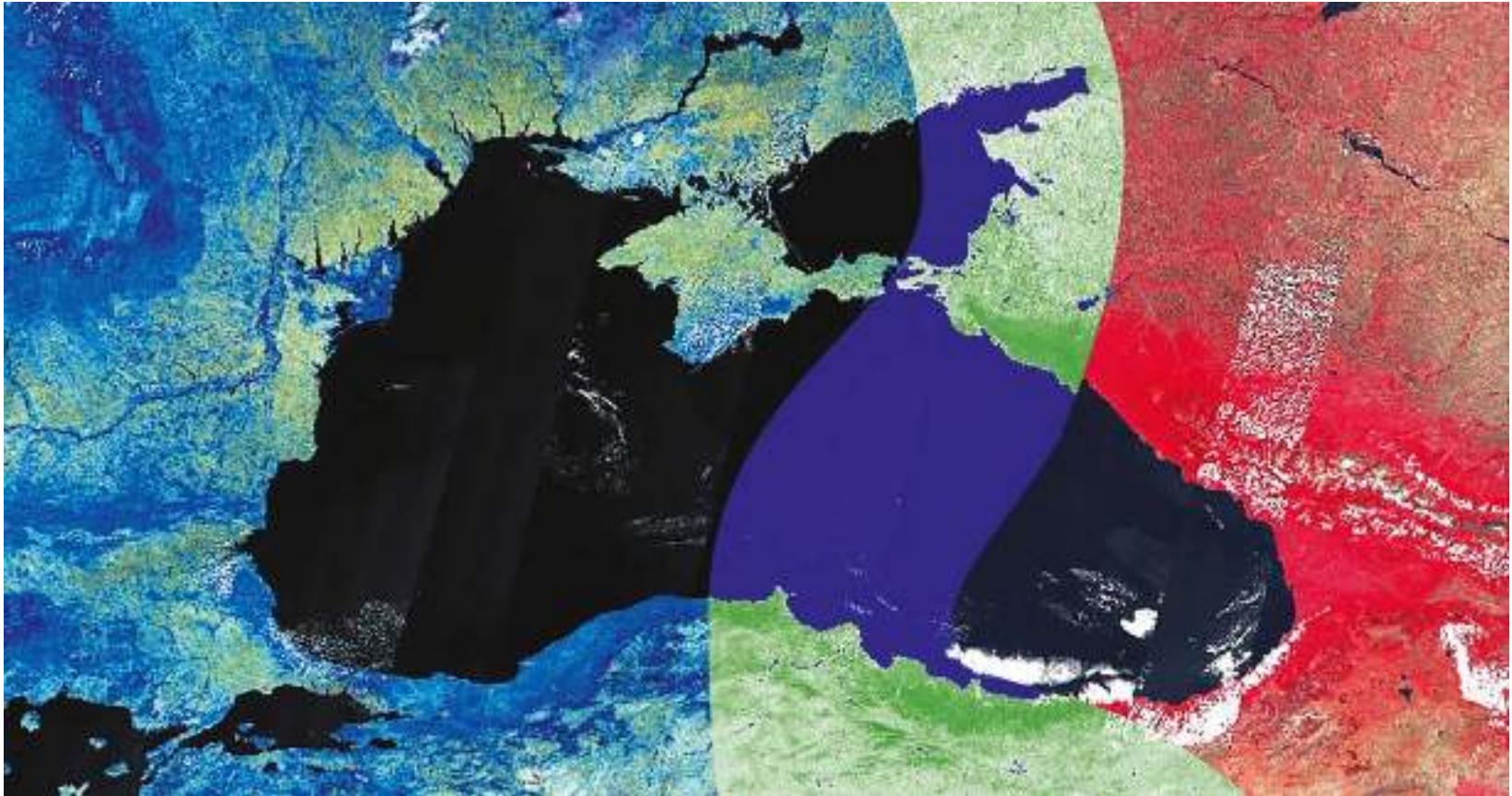
MAD (Multivariate Alteration Detection)



- Most tree loss in forests occur **outside** of protected areas and **near settlements**.
- Forest growth may be associated with an increase in total forest biomass in **previously flooded or strict managed areas**.
- Data on the **gain** and **loss** of forest trees can be used to determine the degree of forest degradation and the rate of deforestation.

KNP Zones	Class Name	Change Percentage %
Area of traditional use	Tree Gain > 60%	2.2
	Tree Gain 20-60%	23.9
	Unchanged	55.9
	Tree Loss 20-60%	9.8
	Tree Loss > 60%	0.5
Managed protection zone	Tree Gain > 60%	0.5
	Tree Gain 20-60%	9.0
	Unchanged	26.4
	Tree Loss 20-60%	12.9
	Tree Loss > 60%	0.8
Strict protection zone	Tree Gain > 60%	2.3
	Tree Gain 20-60%	12.4
	Unchanged	13.5
	Tree Loss 20-60%	2.2
	Tree Loss > 60%	0.4

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THANK YOU!