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# Tracking shoreline erosion of “at risk” coastal archaeology (Persian Gulf: Sassanid-Islamic heritage relicts in southeastern Bataneh, Iran)

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 Nom du projet: Etudes géoarchéologiques des ports du golfe Persique

OT-Mes's research priority WP2 and TWP1. Changements climatiques impacts sur l'érosion littorale et démantèlement des vestiges.

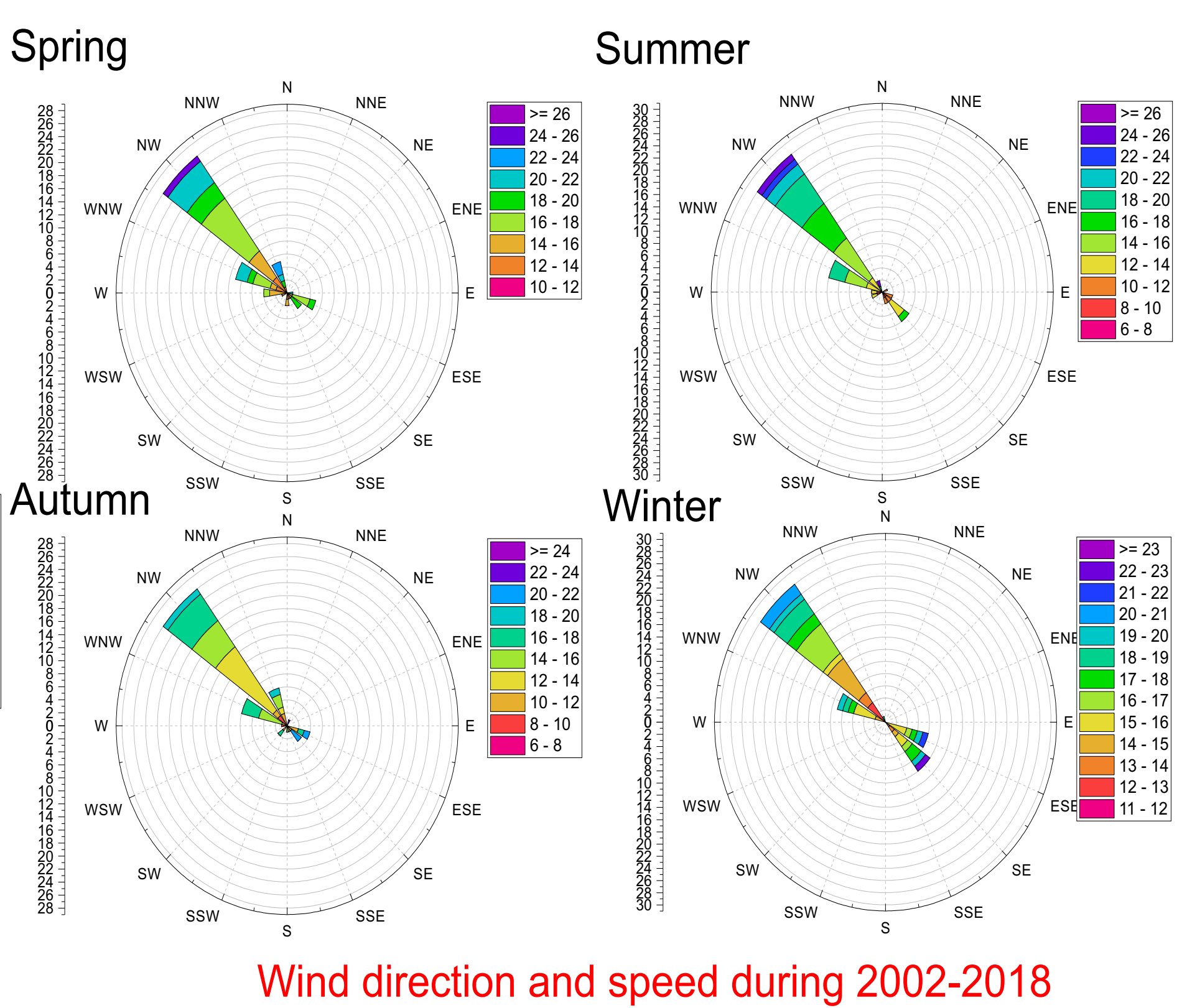
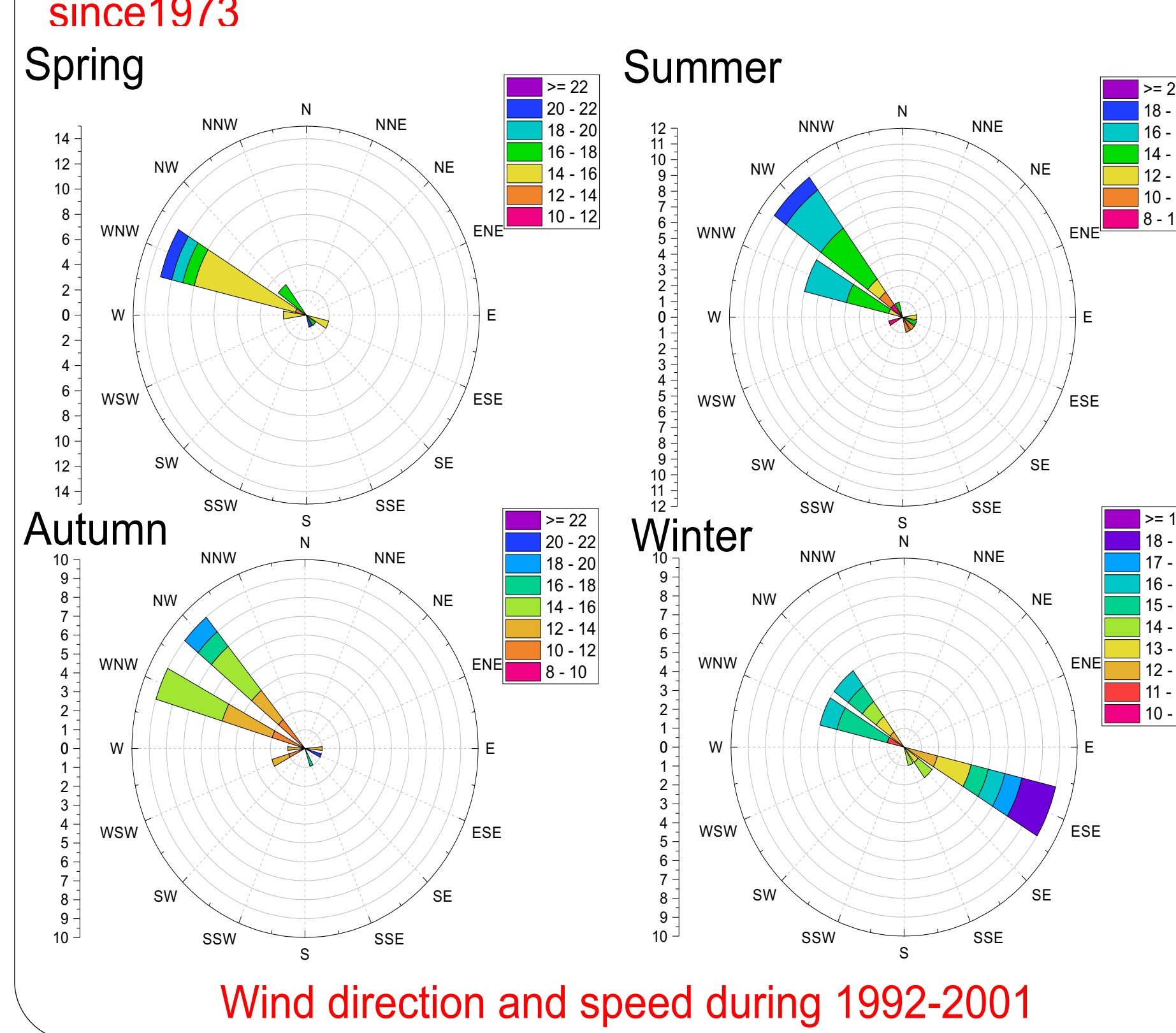
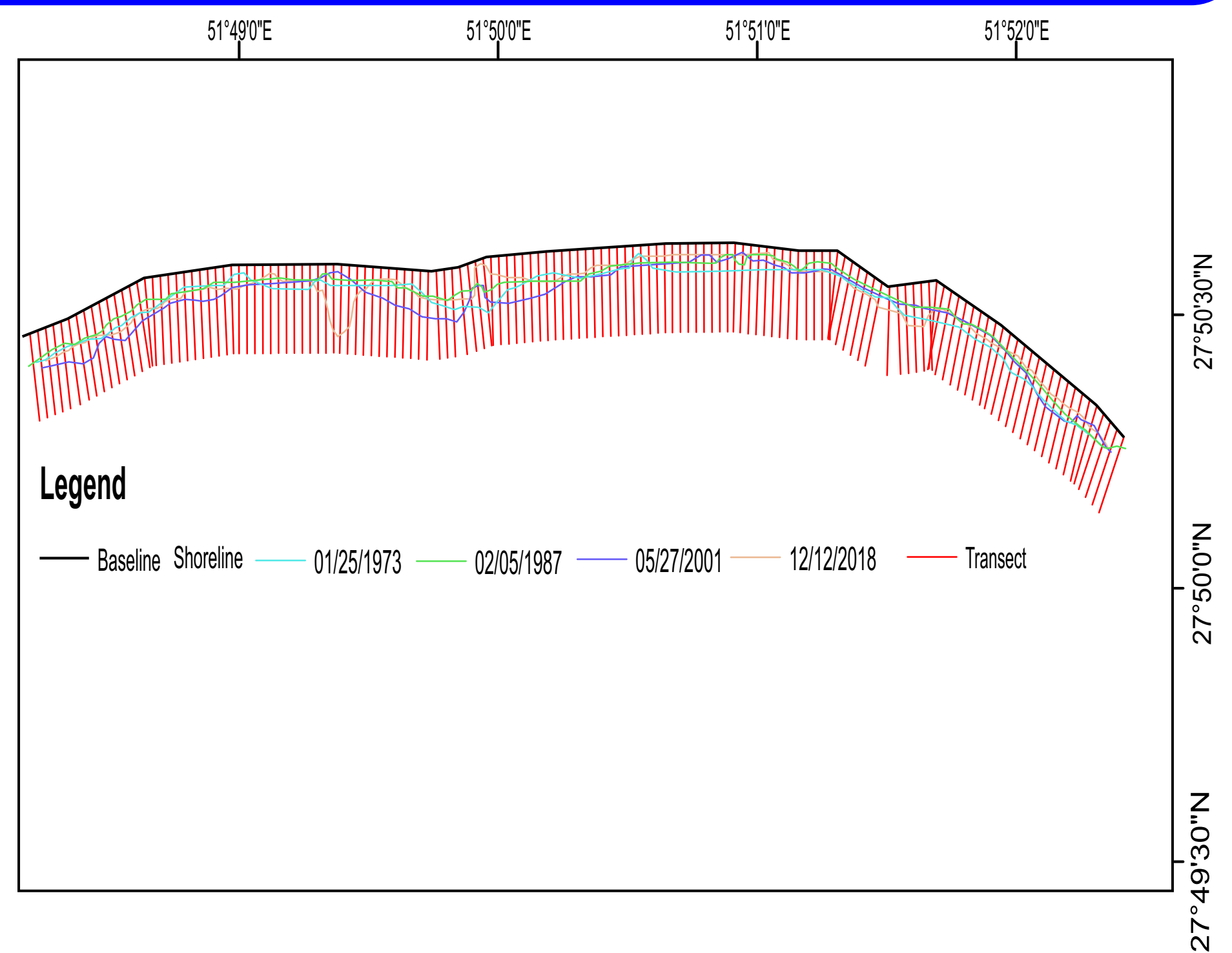
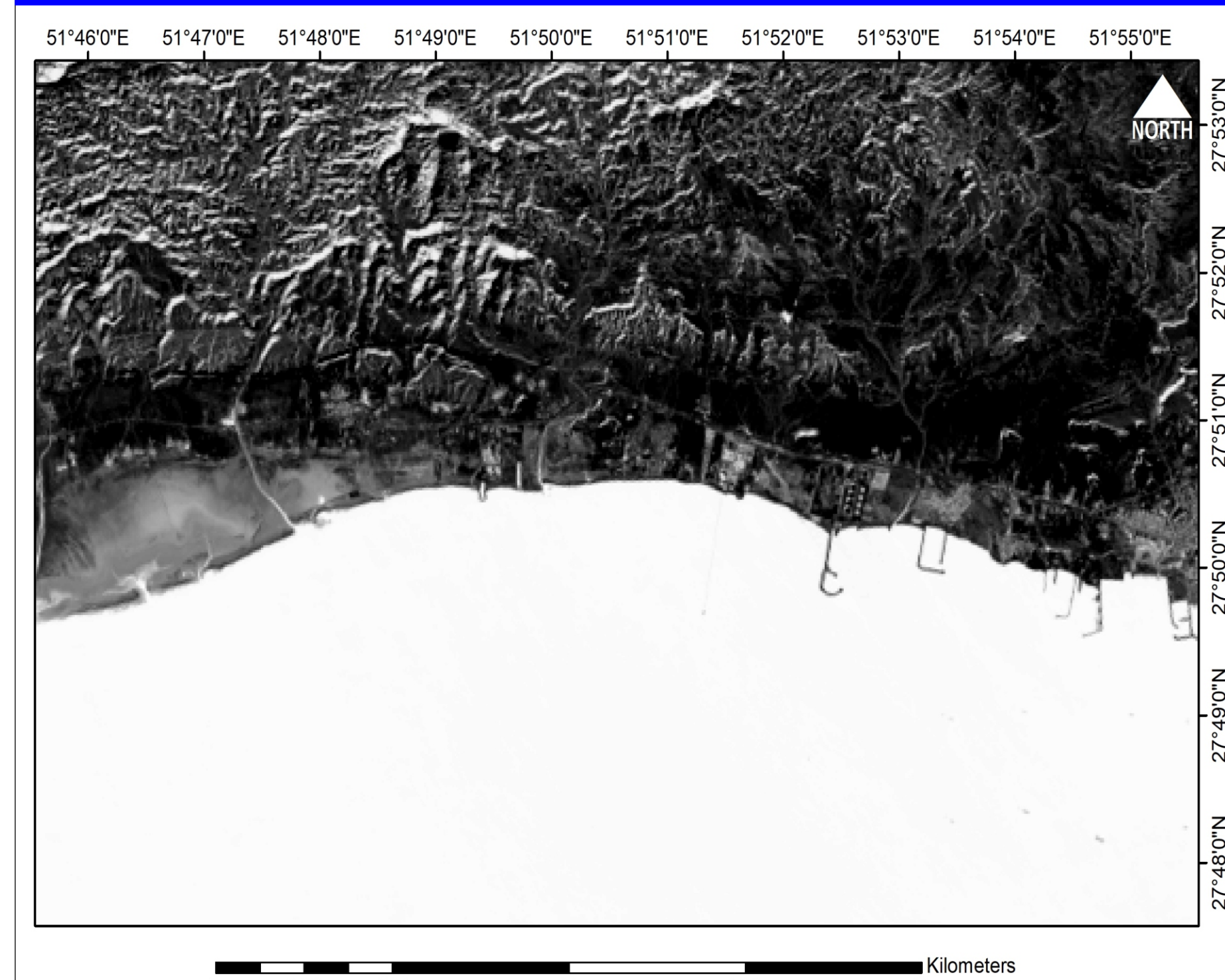
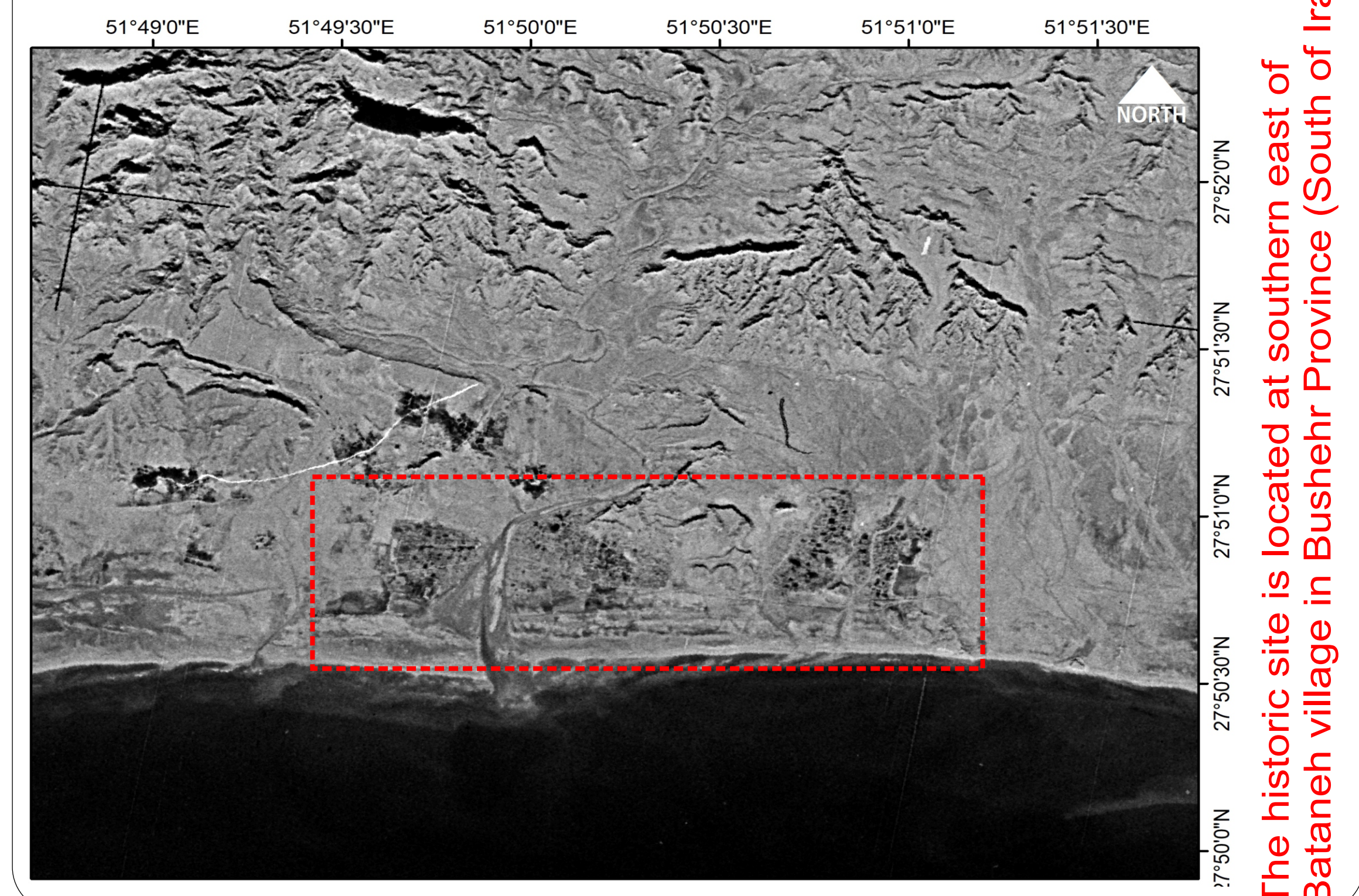
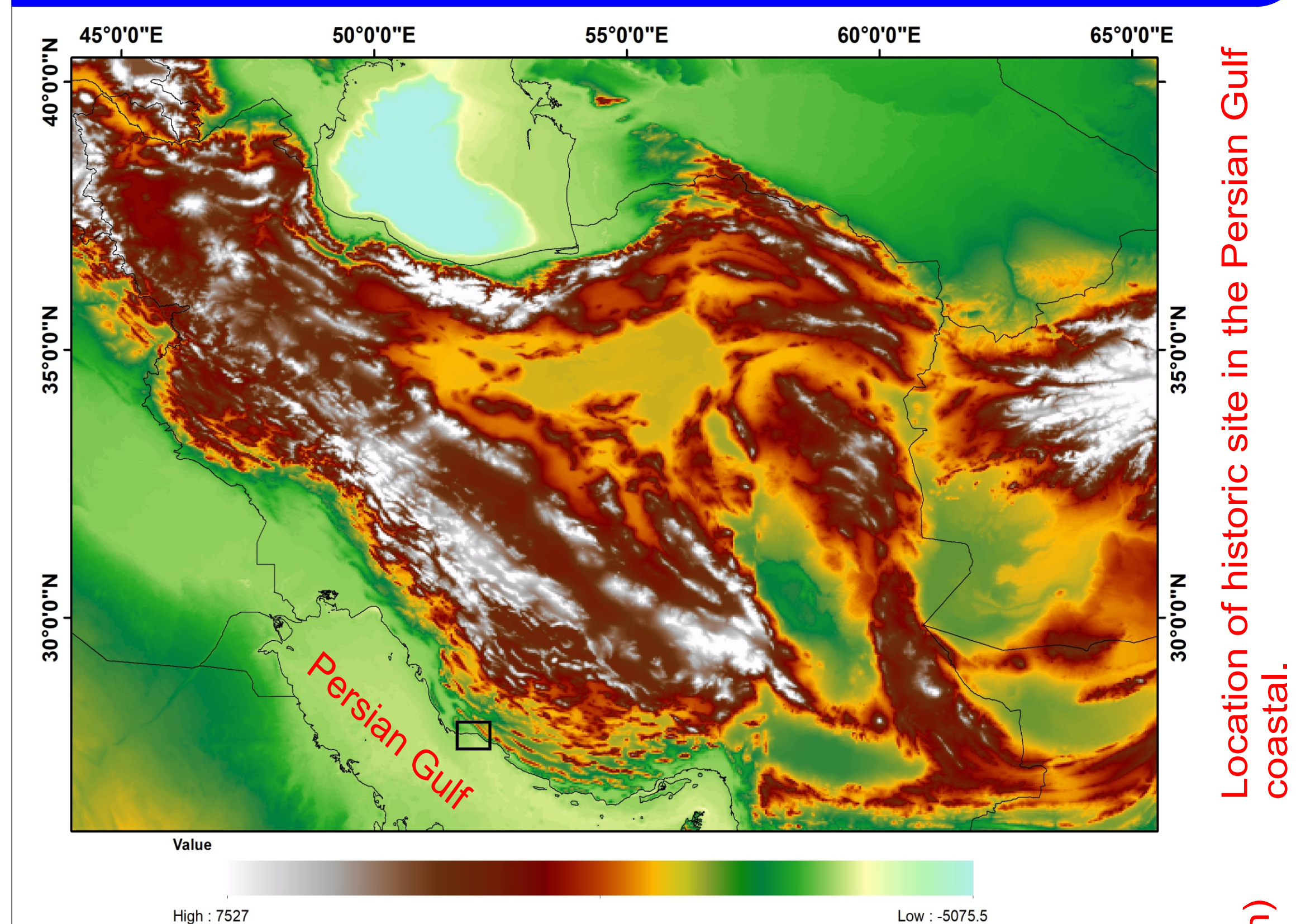
# Erosion littorale des sites achéologiques du golfe Persique, héritages sassanide-islamiques à Bataneh Sud, Iran

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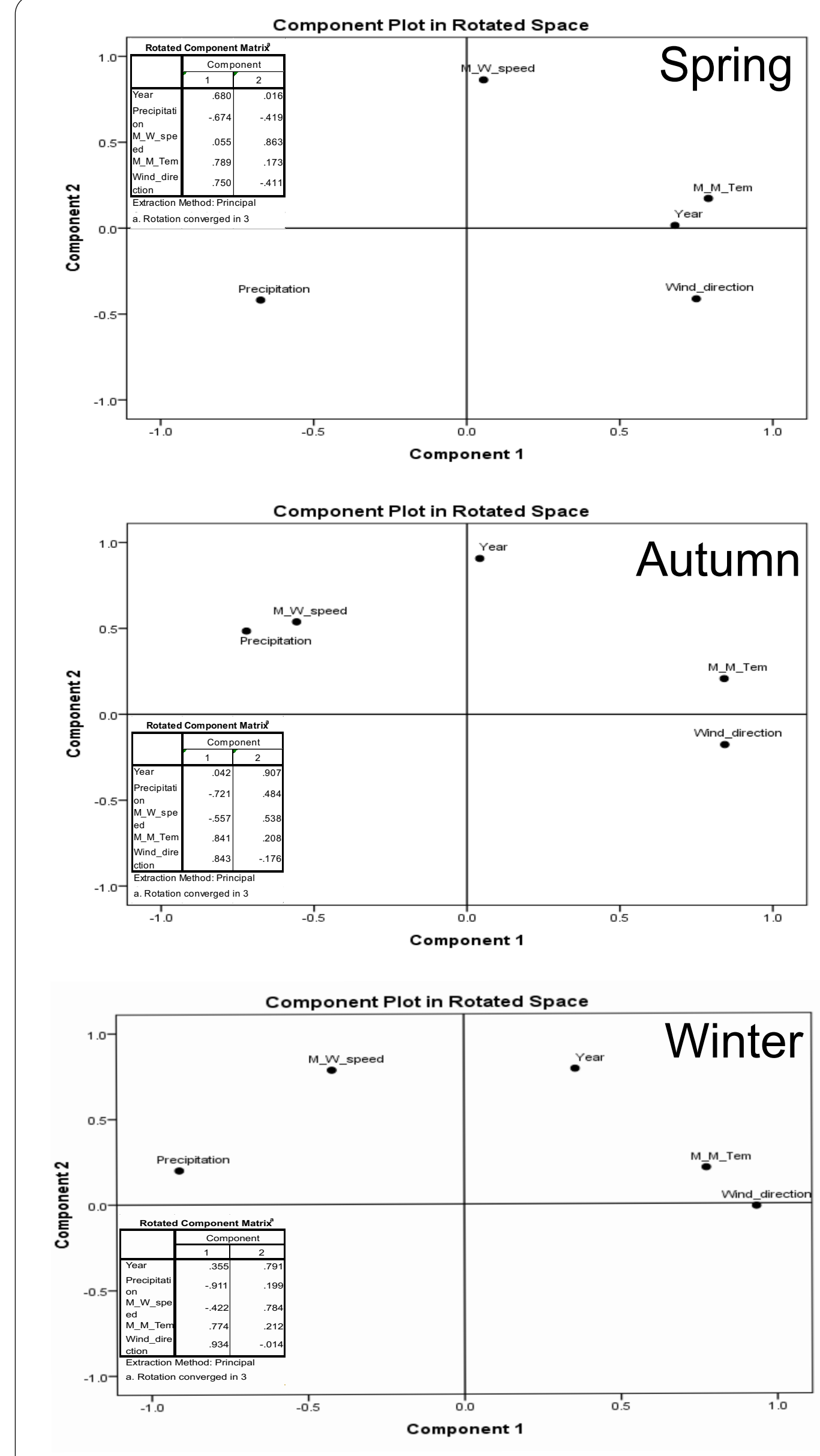
The archeological site contained Sassanid-Islamic relicts. For evaluate shoreline erosion, we used Landsat images since 1973 and meteorological data for last 26 years. Net shoreline movement and End Point Rate was calculated. The results show average erosion rate in the coastal zone is increased from 1973-2001 to 2002-2018. Changes in wind direction led to fall in precipitation. Decreases in river discharge due to increasing aridity has disrupted the sediment transfers to coastal zone. Rate of erosion has increased and threatens the waterfront archaeology of the Persian Gulf.

Le site archéologique contient des vestiges archéologiques sassanides et islamiques. Pour évaluer l'érosion des rivages, nous avons utilisé des images Landsat depuis 1973 et des données météorologiques pour les 26 dernières années. La mobilité du rivage et les taux de variation ont été calculés. Les résultats montrent que le taux d'érosion moyen dans la zone côtière a augmenté depuis 1973-2001 jusqu'à 2002-2018. Les changements de direction du vent ont entraîné une baisse des précipitations. La diminution des débits des cours d'eau due à l'aridité croissante a diminué les transferts de sédiments vers la zone côtière. Le taux d'érosion a augmenté et menace les vestiges archéologiques du front de mer du golfe Persique.

## Study Area



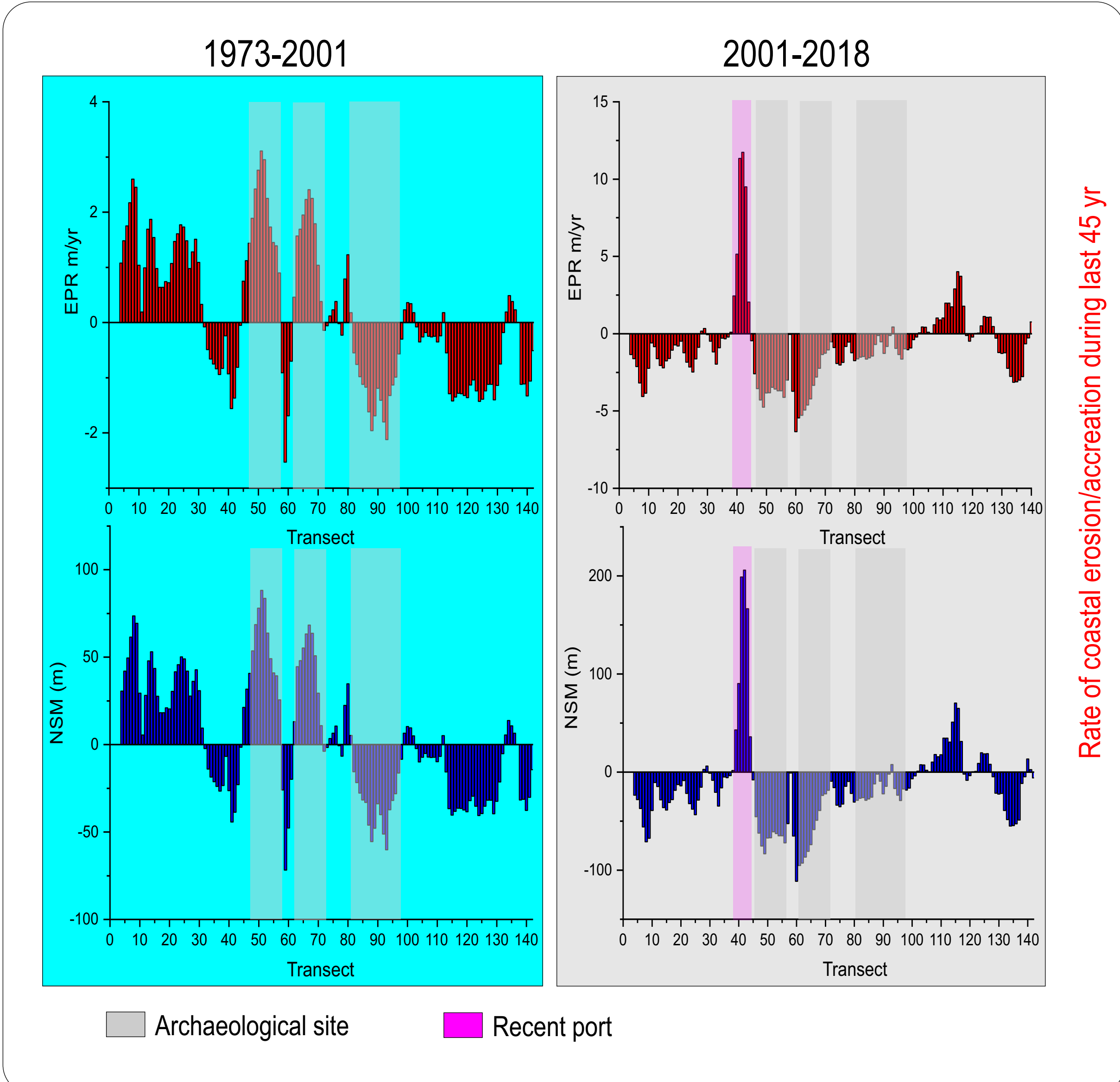
## Results and Conclusion



Principal component analysis (PCA) results for weather data shows that wind speed is increasing in all seasons, especially in summer time, and precipitation is decreasing with rising temperatures and changing permanent wind direction to NW and NNW. These changes lead to decrease rivers discharge and amplitude wave energy in the coastal zone

The EPR and NSM results demonstrate that the average rate of erosion in the coastal zone was -0.9 m/yr with a total 26-m regression whereas accretion was 1.22 m/yr with a total 34.82 m progression during 1973-2000. This trend significantly changed for 2001-2018 when 83% of transects shows erosion with an average -1.94 and -34.1 meter coastal retrogression. The results is correlated with the meteorological data.

The results of this study demonstrated that the waterfront archaeological sites of the Persian Gulf exposed in great risk of coastal erosion due to the climate changes during last decades.



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