SUPPLEMENT MATERIAL

1. DISTRIBUTIONS OF MAXIMUM WAVE AMPLITUDES AND ARRIVAL TIME OF FIRST WAVE; AND WATER LEVEL FLUCTUATIONS AT TSUNAMI FORECAST POINTS (HAYDARPASA, YALOVA, MUDANYA, ERDEK, DEGIRMENCIK, M. EREGLI) FOR EACH EARTHQUAKE SCENARIO

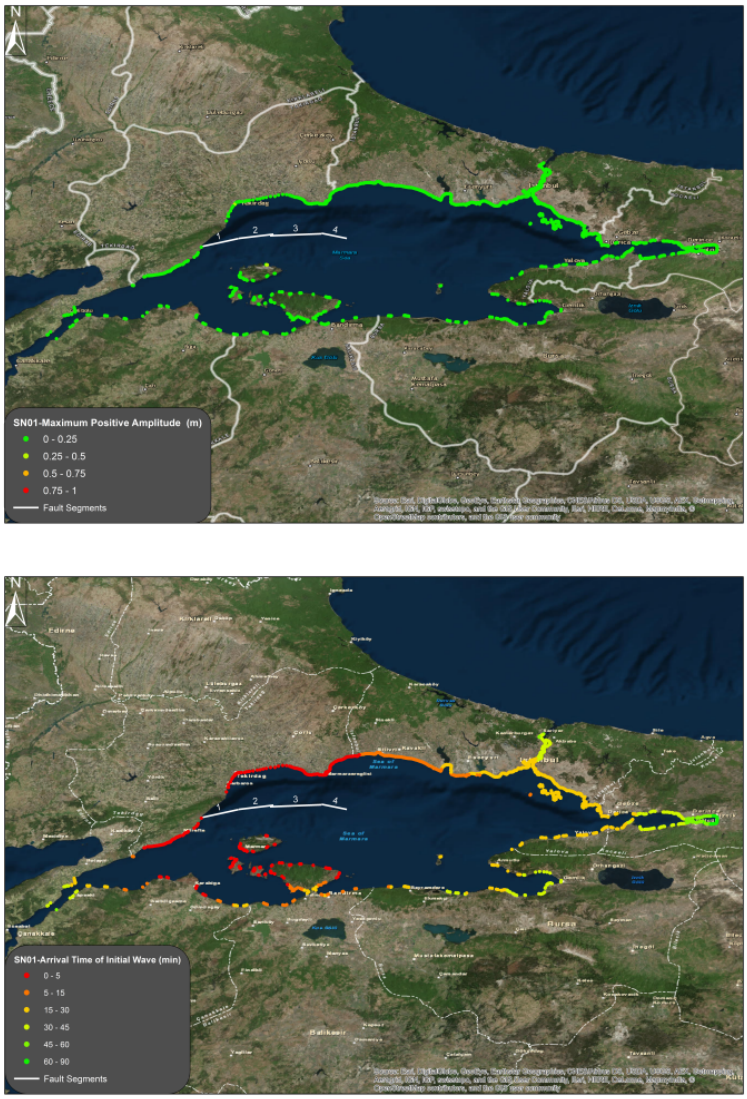

Figure 1: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN01. The maximum wave amplitudes throughout Marmara Sea are less than 25cm. The waves first reach at northwestern coasts within 5 minutes. The waves then reach to Istanbul coasts within 15 to 30 minutes. The latest effects are observed along Izmit Bay that is 1 hour after earthquake.

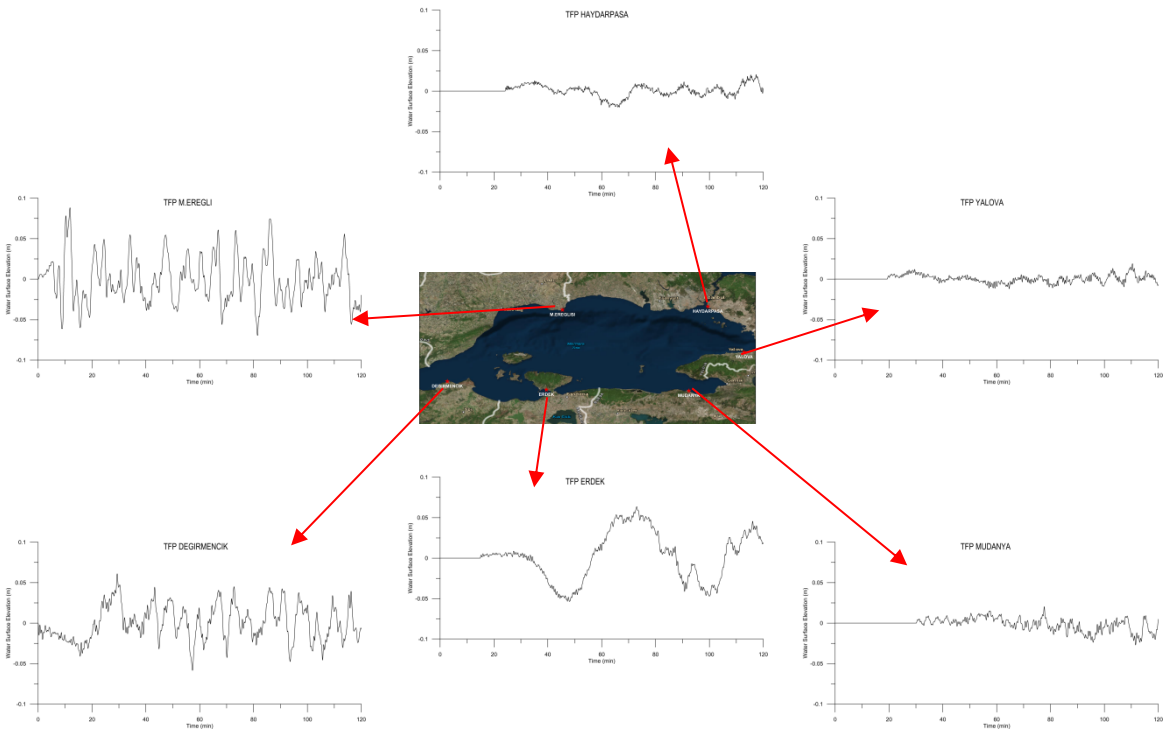

Figure 2:Water level fluctuations calculated for Scenario-01 at Tsunami Forecast Points in Marmara Sea. The waves first reach to M. Eregli and Degirmencik less than 2 minutes. The highest wave amplitudes calculated observed at all TFPs are also less than 10cm and therefore the wave effect is negligible at all TFPs.

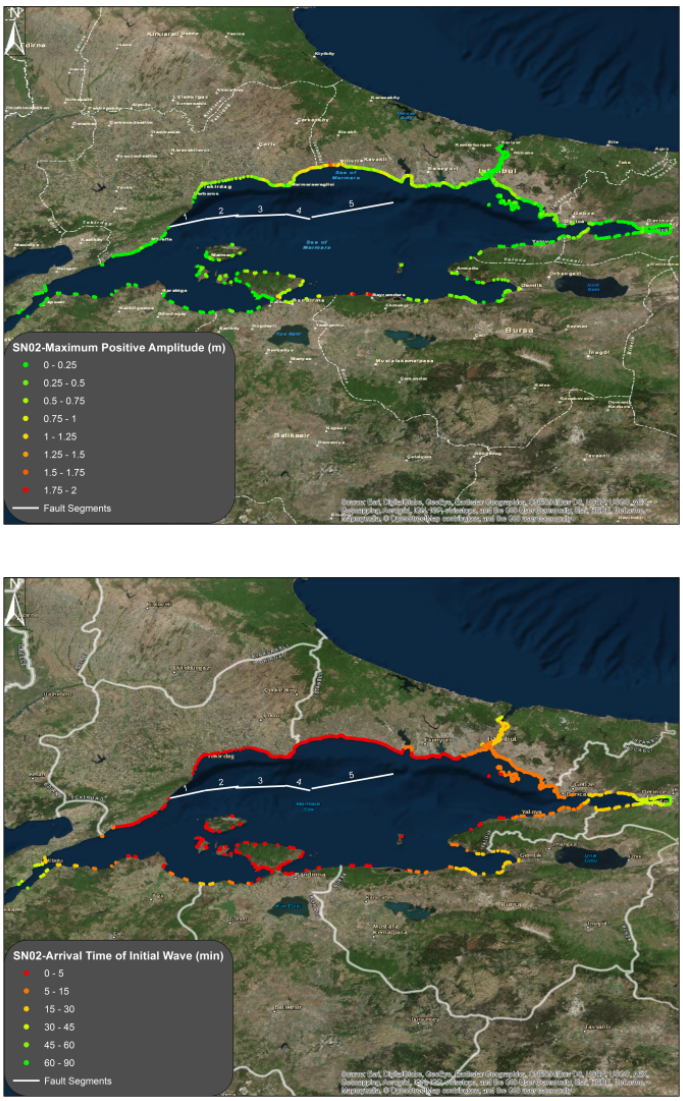

Figure 3: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN02. The north coasts of Marmara are affected by tsunami with the amplitudes up to 1m. The amplitudes reach up to 2m at some locations along Silivri coasts. The small settlements Kursunlu and Bayramdere at southern coasts are also observed wave amplitudes around 1.8m. Wave amplitudes around 1m are also calculated at the southeastern part of Erdek peninsula. The waves reach most of the northern coasts and Erdek peninsula within 5 minutes. The first waves arrive to Prince Islands and Istanbul coasts within 15 minutes; Bosphorus and Canakkale Dardanelle within 30 minutes.

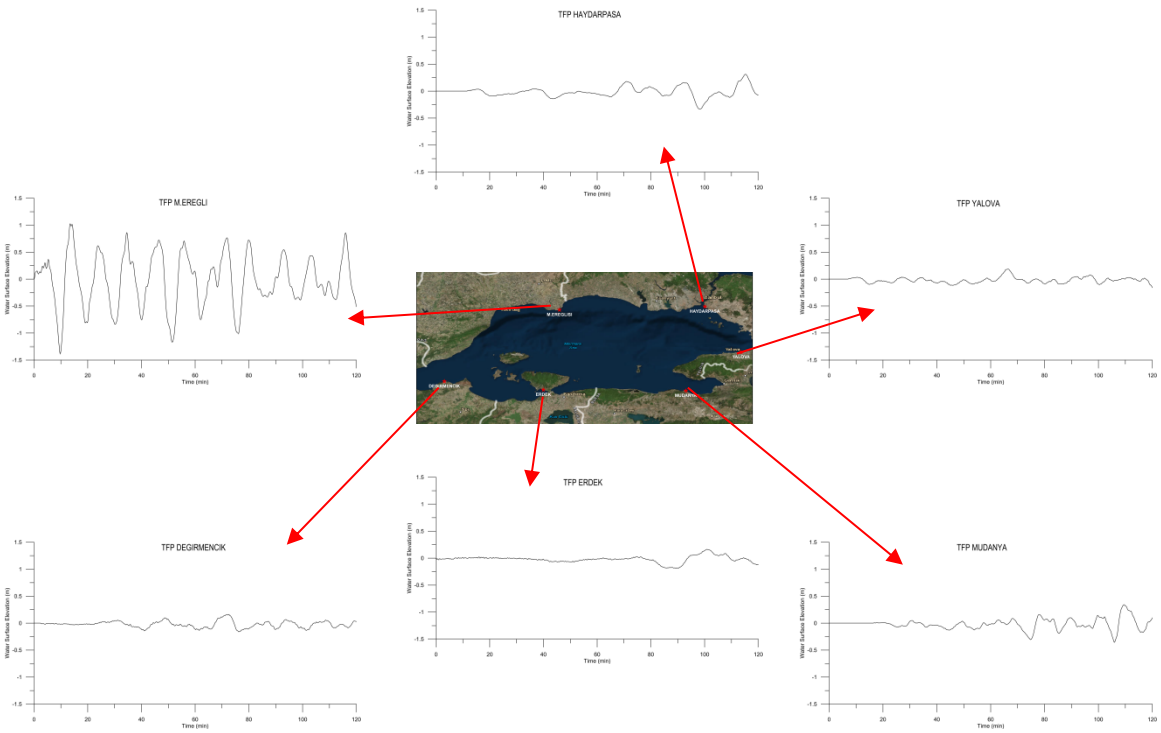

Figure 4: Water level fluctuations calculated for Scenario-02 at Tsunami Forecast Points in Marmara Sea. The highest water surface elevations are calculated at M. Eregli located at the northern coasts reaching up to 1m positive amplitudes and -1.3m negative amplitudes. The water level continues fluctuating approximately with a period of 10 minutes between +90cm and -1m in a regular pattern. The arrival time of first wave at M. Eregli TFP is less than 5 minutes. The wave amplitudes at Haydarpasa, Yalova, Mudanya, Erdek and Degirmencik do not exceed 50cm. The waves reach to Yalova in 10min, Mudanya in 20min, Degirmencik in 30min and Erdek in 80min. The maximum wave amplitude is observed in Haydarpasa almost 2 hours after the earthquake but in less than 50cm.

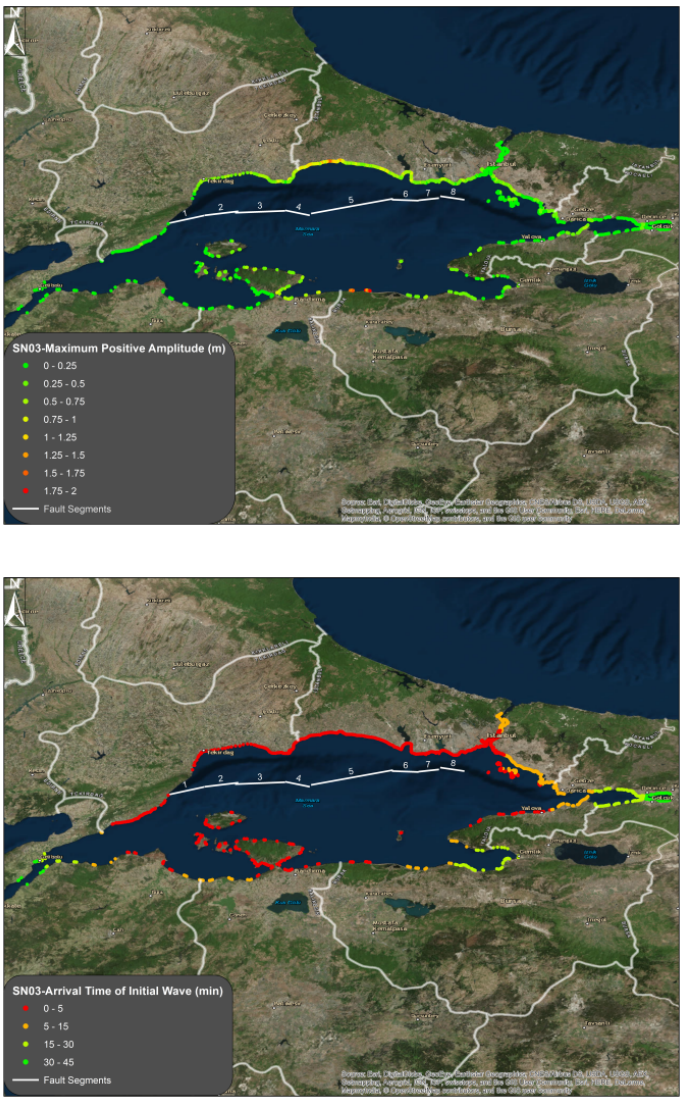

Figure 5: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN03. The highest wave amplitudes are calculated at southern coasts at Kursunlu and Bayramdere districts up to 2m. The waves also reach around 2m at some regions of Silivri coast. The waves are calculated less than 1m at other locations along Marmara sea. The waves reach to northern coasts, Erdek peninsula, and northern coasts, Marmara Island, Cinarcik- Yalova coasts, southern entrance of Bosphorus up to Besiktas and Prince Islands within 5 minutes. All of Istanbul coasts are affected from tsunami within 15 minutes after the earthquake. Waves arrive to the industrial facilities in Izmit Bay within 15 to 30 minutes.

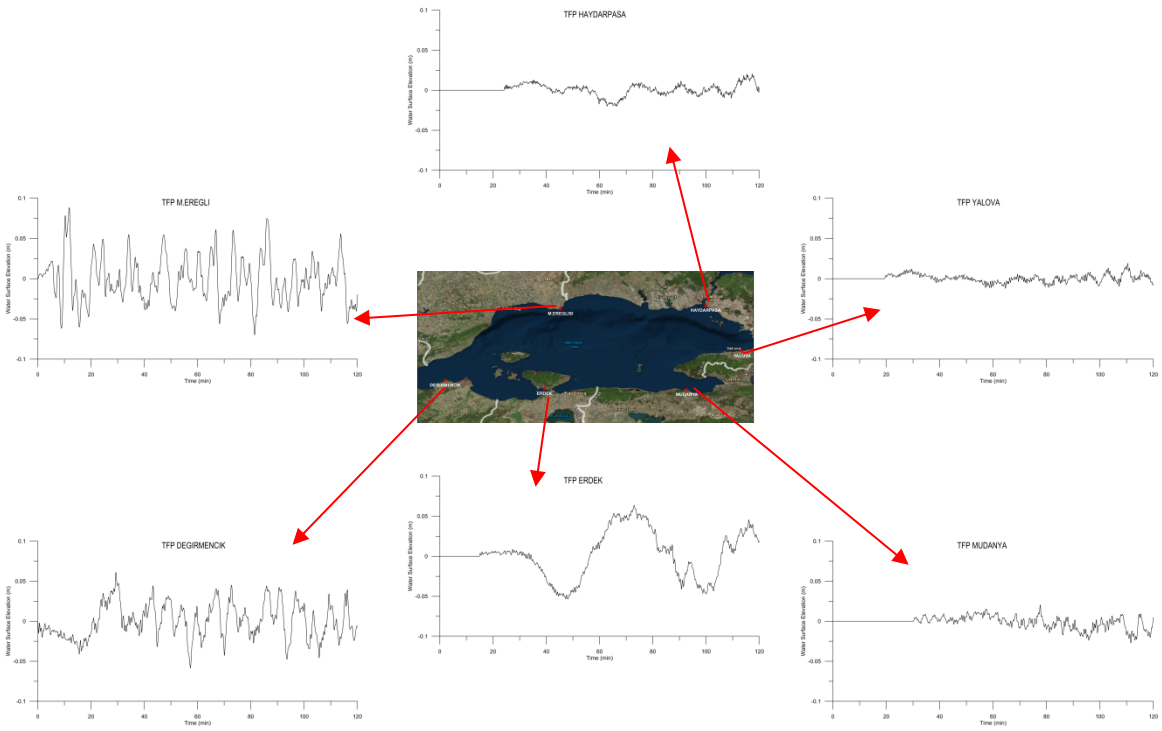

Figure 6: Water level fluctuations calculated for scenario SN03 at Tsunami Forecast Points in Marmara Sea. Although some of the locations along Marmara sea are affected from tsunami due to SN03, all of the TFPs do not experience high water level fluctuations during the event. The maximum water surface elevations occur in M. Eregli which do not exceed 10cm. The wave amplitudes at other TFPs are calculated less than 5cm. The waves first reach to M. Eregli and Degirmencik. The fluctuations are then observed at Erdek, Yalova, Haydarpasa and Mudanya, respectively. The fluctuation levels at Yalova and Mudanya are negligible.

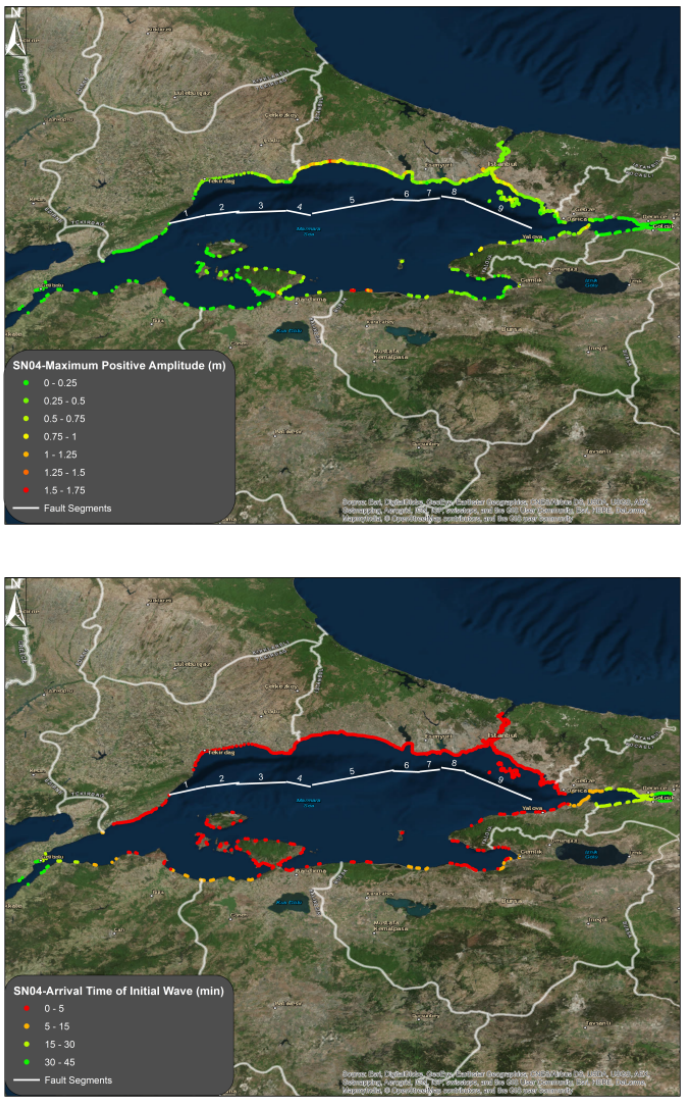

Figure 7: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN04. The maximum wave amplitudes are calculated less than 1m at most of the regions except Silivri coasts, Kadikoy and Kursunlu and Bayramdere districts where the waves reach up to 1.5m. Bostanci, Maltepe, Kartal and coasts of Prince Islands also experience tsunami waves around 1m. The wave amplitudes at Yalova-Cinarcik and Hersek harbor located at the southern entrance of Izmit Bay also reach up to 1m. Around 50cm wave amplitudes are calculated along Bosphorus. First waves would reach almost all of Marmara coasts and Bosphorus within 5 minutes after the earthquake except southwestern part due to the act of Marmara Island as a natural barrier and inner locations of Gemlik Bay. The waves reach to the entrance of Izmit Bay within 15 minutes, inside the bay within 30 minutes and innermost locations within 30 to 45 minutes.

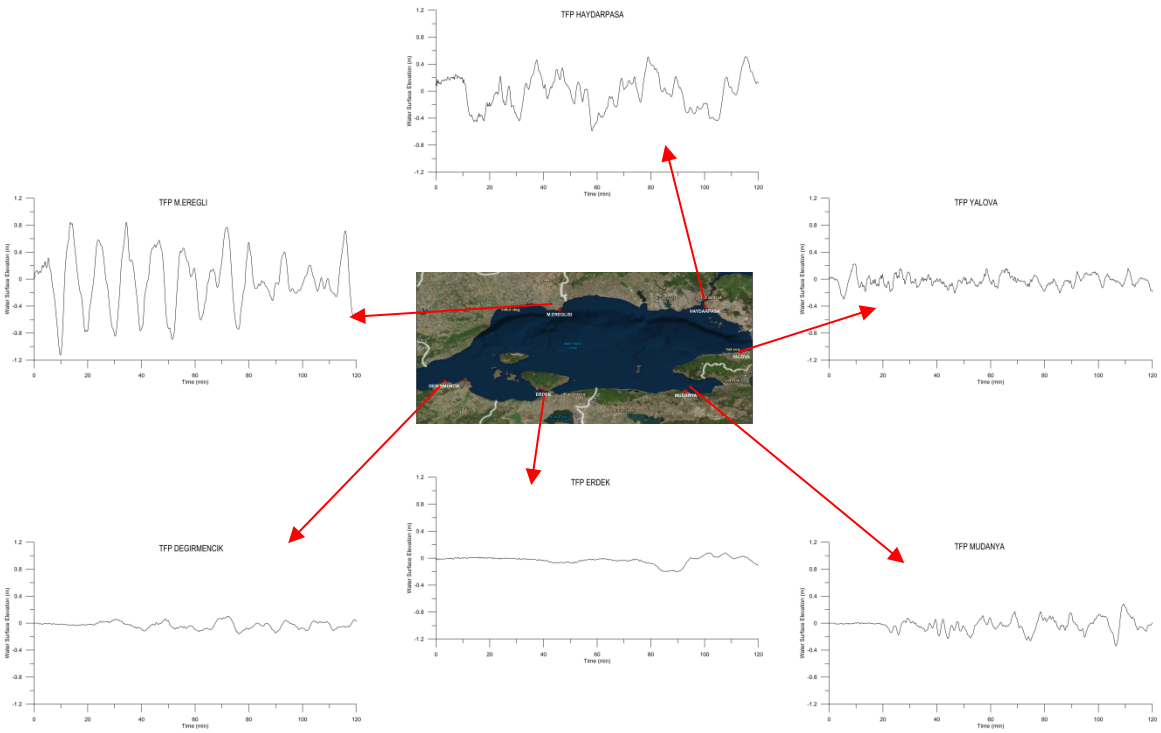

Figure 8: Water level fluctuations calculated for Scenario SN04 at Tsunami Forecast Points in Marmara Sea. The highest water levels are calculated at M. Eregli where the maximum positive amplitudes reach up to 80cm and the minimum water levels exceed -1m. The maximum positive and negative amplitudes at Haydarpasa reach up to ±50cm. The maximum positive wave amplitudes at Yalova, Mudanya and Degirmencik TFPs are less then 30cm. The first waves arrive to M. Eregli, Haydarpasa and Yalova TFPs immediately after the earthquake. The arrival time of first wave at Mudanya and Degirmencik is about 20 minutes after the event.

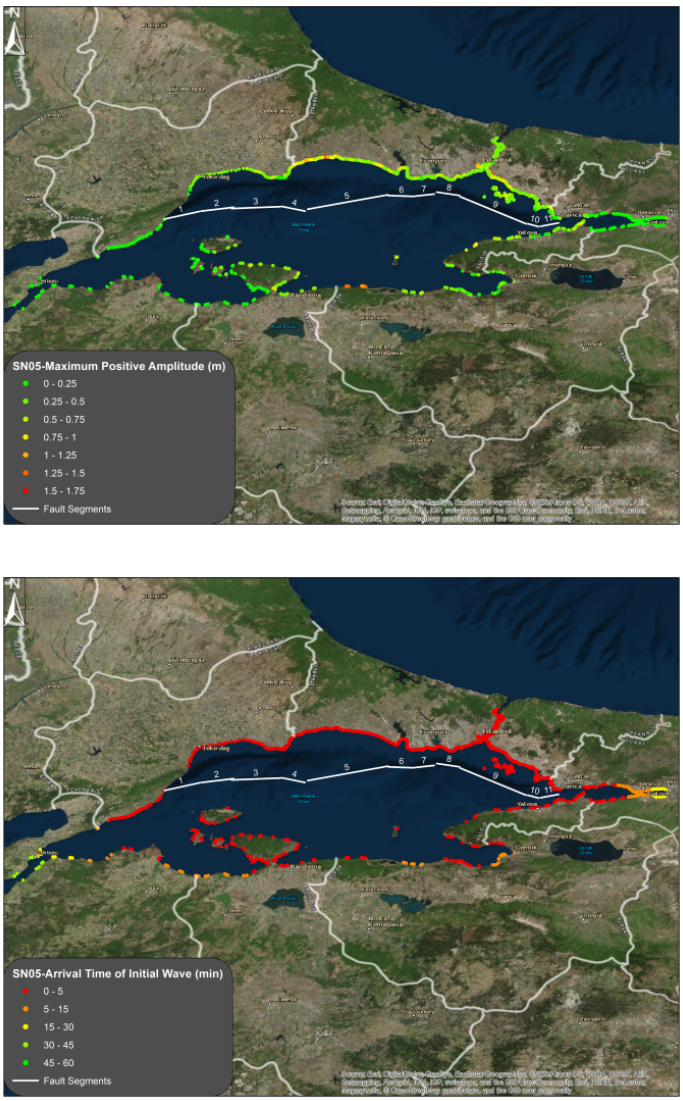

Figure 9: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN05. The maximum wave amplitudes are similar with the values in SN04 except the northern entrance of Izmit Bay around Darica and Gebze. The fault segments 10 and 11 contribute so slightly higher wave amplitudes at these locations. Similar with SN04, the waves reach most of the Marmara coasts within 5 minutes. Only the coastal regions at the south of Marmara Island and inner parts of Gemlik Bay experience tsunami a bit late, that is within 15 minutes after the earthquake. Different from SN04, the waves reach to inner locations of Izmit Bay about 15 minutes earlier that is about 15 to 30 minutes after the event. Waves reach to the northern entrance of Dardanelle within 30 minutes.

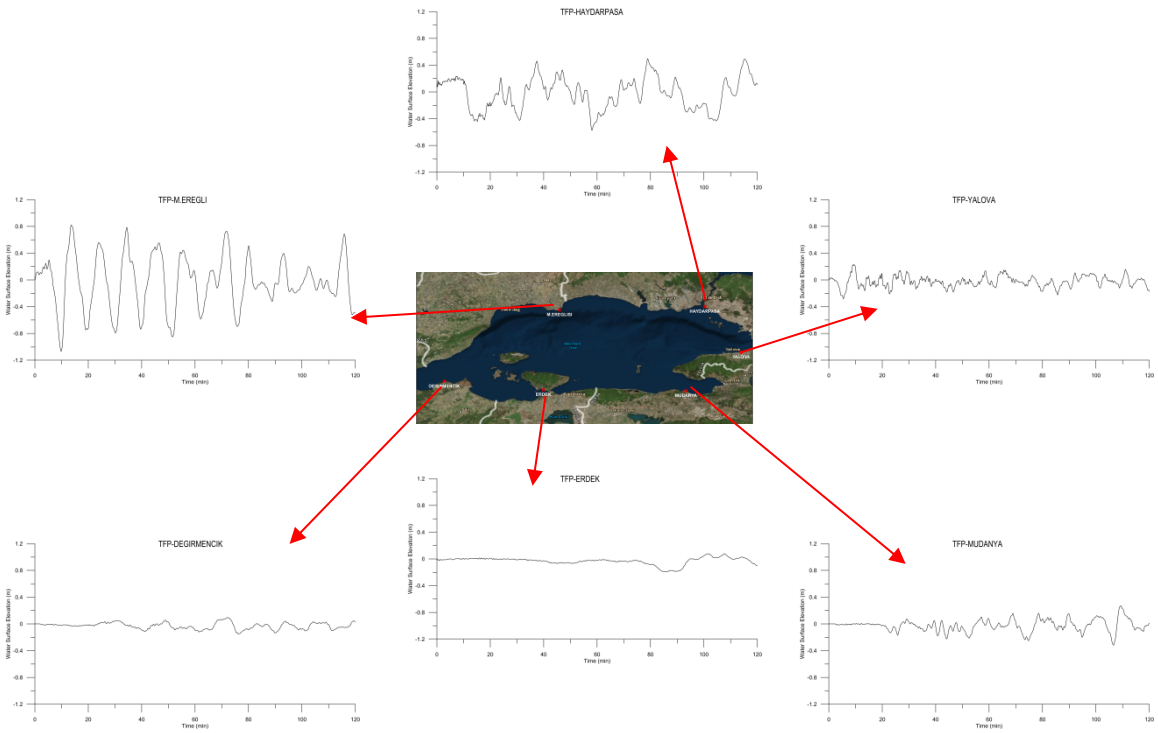

Figure 10: Water level fluctuations calculated for Scenario-05 at Tsunami Forecast Points in Marmara Sea. The water level fluctuations are calculated almost same with SN04. The highest water levels are calculated at M. Eregli where the maximum positive amplitudes reach up to 80cm and the minimum water levels exceed -1m. The maximum positive wave amplitudes at Yalova, Mudanya and Degirmencik TFPs are less then 30cm. The fluctuation levels at Haydarpasa reach up to ±50cm. The first waves reach to M. Eregli, Haydarpasa and Yalova TFPs immediately after the earthquake. The arrival time of first wave at Mudanya and Degirmencik is about 20 minutes after the event.

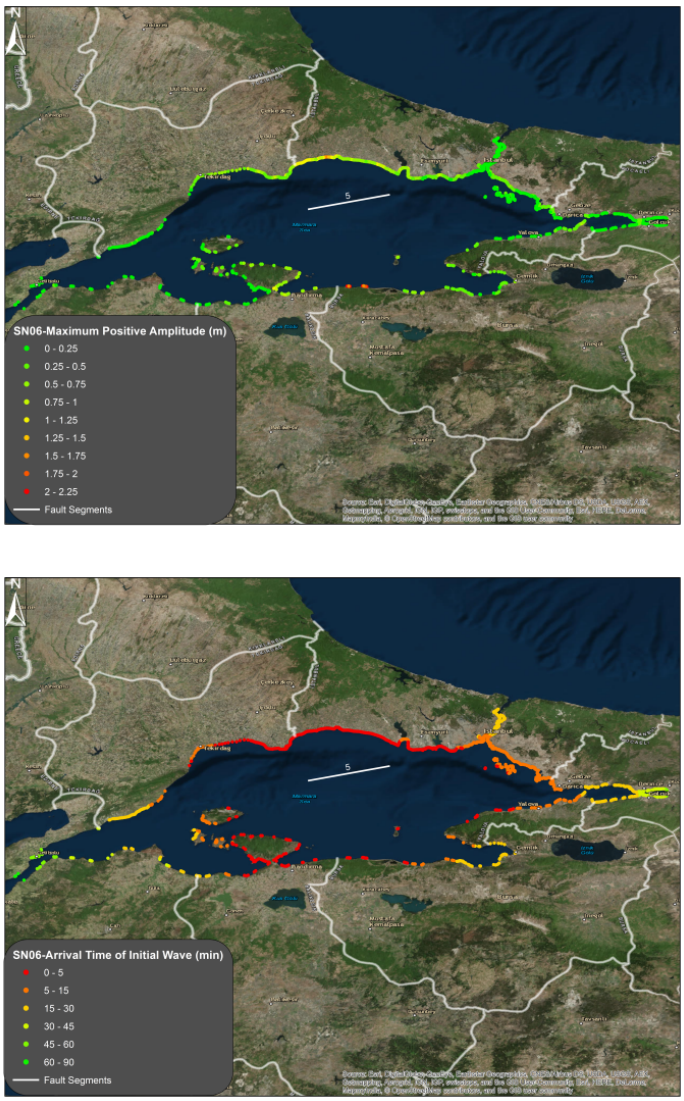

Figure 11: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN06. The northern Marmara coasts especially from M. Eregli to B. Cekmece and eastern coasts of Erdek peninsula experience tsunami wave amplitudes around 1m. The water elevations reach up to 2m at Silivri region along northern coast and more than 2m at Kursunlu and Bayramdere districts along southern coast. The first waves arrive to northern and southern coasts of Marmara Sea, Erdek peninsula and western coasts of Marmara Island within 5 minutes. The western and eastern coasts of Marmara sea, the entrance of Gemlik and Izmit Bays, the coastal region between Uskudar and Darica and Kumbag coasts in Tekirdag province meet with the first tsunami waves within 10 to 15 minutes. The first waves reach to Bosphorus, southwest coasts of Marmara Sea, inner coasts of Gemlik and Izmit Bays and west coasts of Tekirdag province within 30 minutes. The entrance of Dardanelle is the last region that observes first tsunami waves.

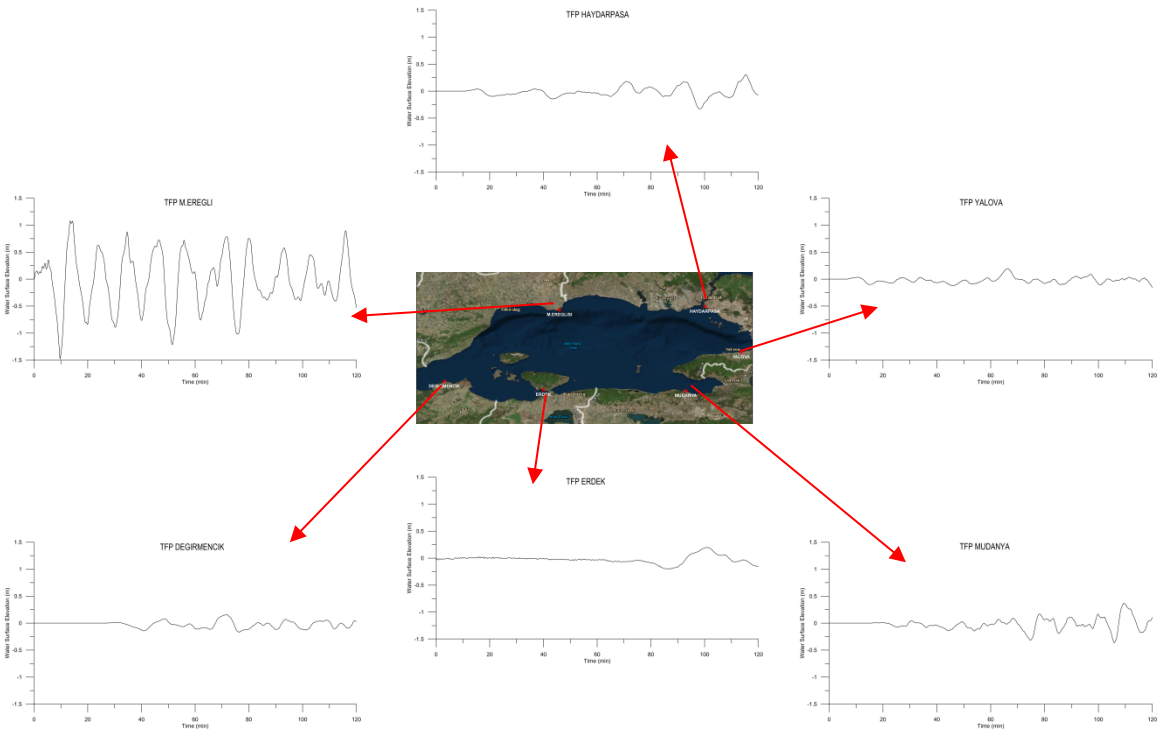

Figure 12: Water level fluctuations calculated for scenario SN06 at Tsunami Forecast Points in Marmara Sea. Similar with the previous scenarios, M. Eregli experiences the highest water surface fluctuations here the tsunami waves reach first during SN06. The first wave is calculated as a leading depression wave withdrawn up to -1.5 m maximum negative amplitude and then water level rises up to more than 1m within 15 minutes after the earthquake. The other TFPs seem safer than M. Eregli that the maximum positive amplitude does not exceed 50cm.

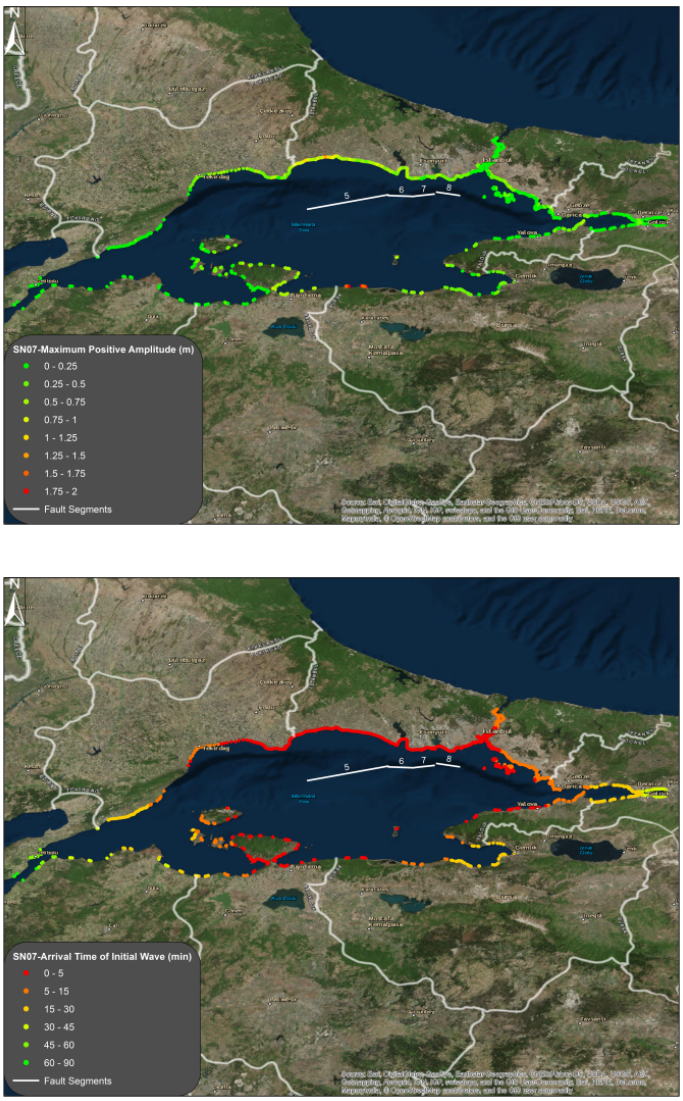

Figure 13: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN07. The distributions of maximum wave amplitudes calculated for this scenario along Marmara coasts are similar with the ones for SN06. The maximum wave amplitudes reach up to 1m along northern coasts, about 1.5m around Silivri district and about 2m at Kursunlu and Bayramdere districts along southern coasts. The first waves arrive to the northern coasts, eastern coasts of Marmara Island, Erdek peninsula and Bandarma coasts, Cinarcik-Yalova coasts, southern coasts of Prince Islands, northern Imrali Island and the southern entrance of Bosphorus within 5 minutes. The arrival time of first wave along the coasts from Bostanci to Gebze, Hersek and Topcular coasts, western coasts of Marmara, Avsa and Pasalimani Islands, northern Bosphorus, and western coasts of Tekirdag province within 15 minutes. The inner coasts of Gemlik and Izmit Bays, Sarkoy coasts in Tekirdag province meet with the first tsunami waves within 30 minutes. The waves arrive to innermost regions of Izmit Bay and entrance of Dardanelle within 60 minutes. Gelibolu and Lapseki coasts experience tsunami waves more than 1 hour after the earthquake.

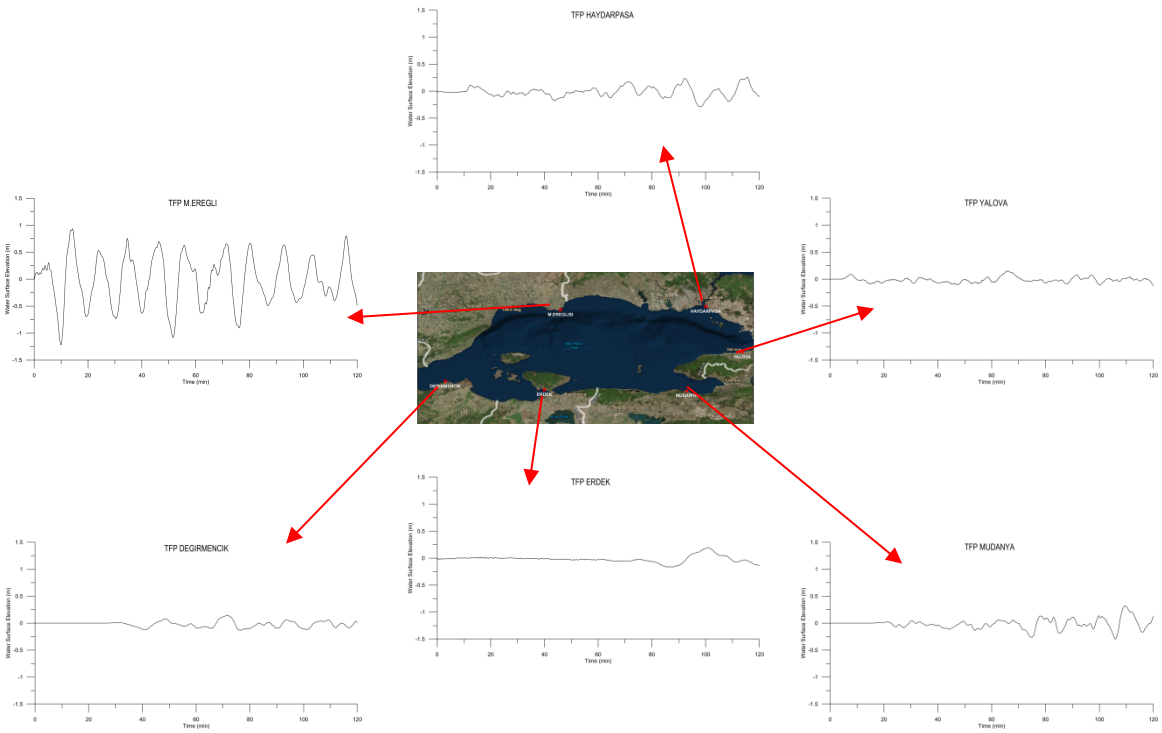

Figure 14: Water level fluctuations calculated for scenario SN07 at Tsunami Forecast Points in Marmara Sea. The highest water levels are calculated at M. Eregli with first -1.2m withdraw and up to 1m positive amplitude. The water level fluctuates at M. Eregli with a period of approximately 10 minutes between ±75cm. The maximum positive wave amplitudes at other TFPs do not exceed 30cm.

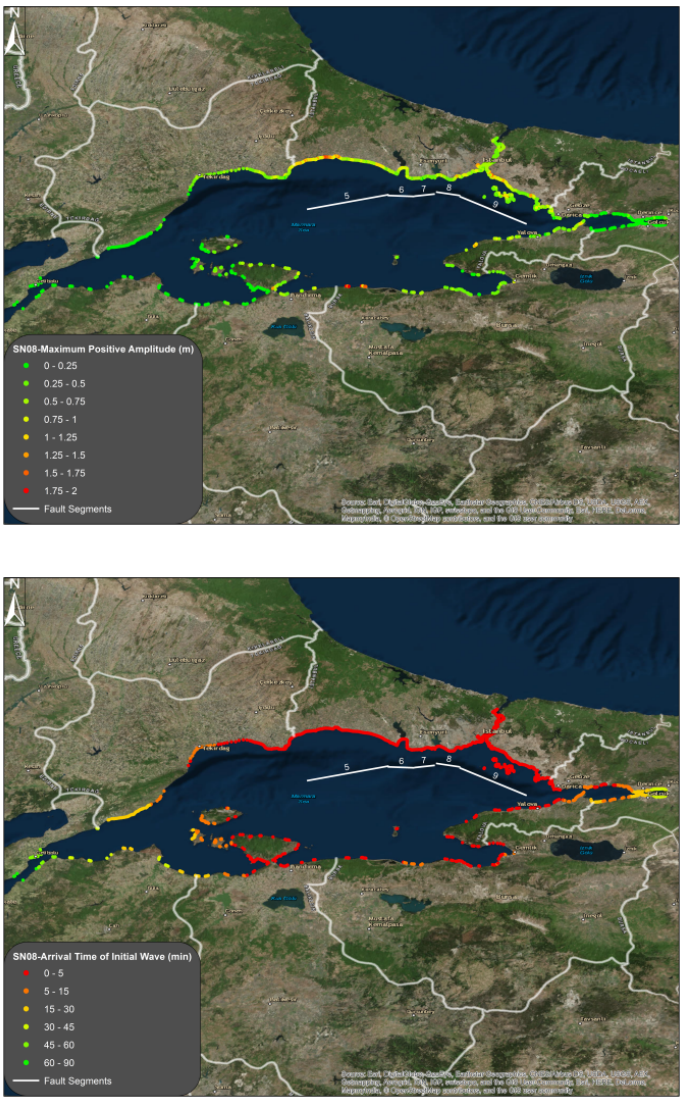

Figure 15: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN08. The contribution of segment 9 in SN08 increases the wave heights and shortens the arrival time of first wave along the coasts of Istanbul and Prince Islands. The maximum positive wave amplitudes reach up to 1.5m at some locations in Prince Islands and along the Kadikoy, Maltepe, Kartal and Pendik coasts. Similar water levels are calculated along Silivri coasts where higher values are also observed at some locations reaching up to 2m. Moreover, higher values of wave amplitudes are calculated at Kursunlu district around 2m and Bayramdere district around 1.5m along northern coasts. The first waves arrive to northern coasts, all coasts of Bosphorus, Prince Islands; Kadikoy, Maltepe, Kartal and Pendik coasts, Cinarcik-Yalova coasts, all locations in Gemlik Bay, coasts of Erdek peninsula and eastern Marmara Island within 5 minutes. Some locations at southern coasts, the entrance of Izmit Bay, western coasts of Marmara Island and Tekirdag province and Avsa and Pasalimani Islands meet with first waves within 15 minutes. Waves reach to Sarkoy and Degirmencik coasts within 30 minutes.

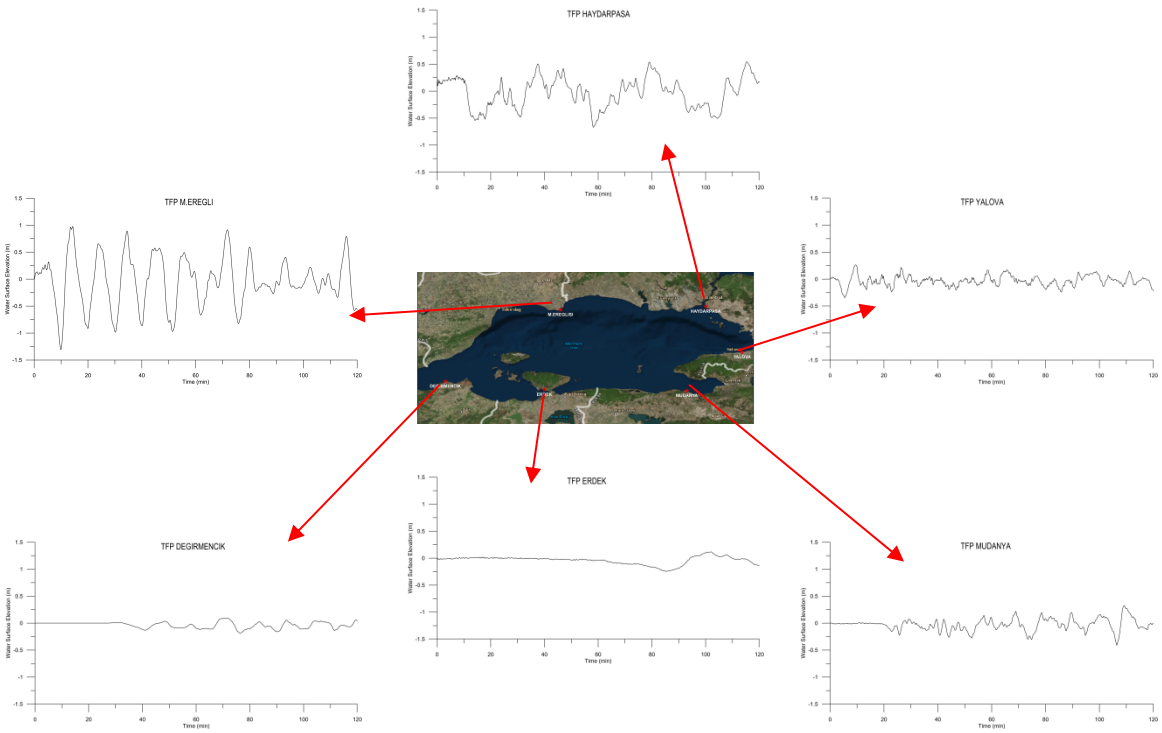

Figure 16: Water level fluctuations calculated for scenario SN08 at Tsunami Forecast Points in Marmara Sea. Waves first arrive to M. Eregli, Haydarpasa and Yalova TFPs. The highest fluctuations are calculated at M. Eregli with -1.3m withdraw and up to 1m positive amplitude. The water surface fluctuates between ±50cm at Haydarpasa TFP. The maximum positive amplitudes do not exceed 30cm at other TFPs.

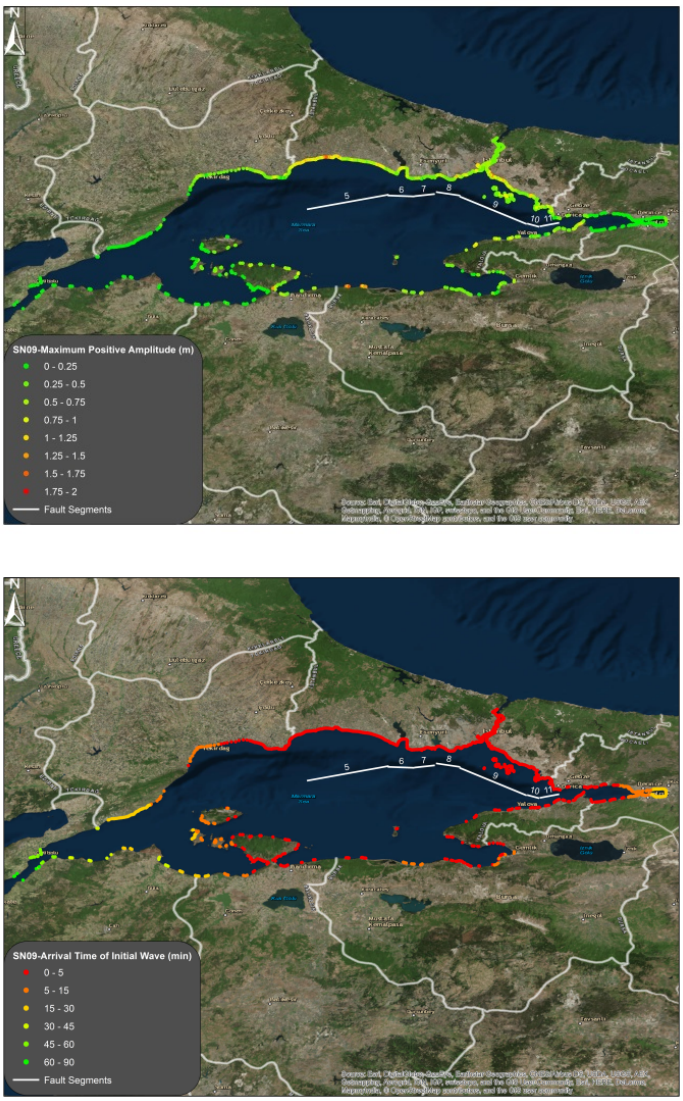

Figure 17: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN09. The wave amplitudes at Kadikoy, Maltepe, Kartal, Pendik and Cinarcik-Yalova coasts together with Silivri coasts in northern Marmara Sea and the entrance of Izmit Bay reach up to 1m. Some of the locations at these regions experience the wave amplitudes up to 1.6m. The maximum wave amplitudes at Kursunlu and Bayramdere districts along southern Marmara Sea are calculated around 2m. According to scenario SN09, the first waves arrive to all Istanbul coasts including Bosphorus, Izmit Bay up to Korfez and Golcuk, southern and northern Marmara coasts, Erdek peninsula and eastern Marmara Island within 5 minutes. The arrival times of first wave increase to 15 minutes at Tekirdag, western Marmara Island, inner locations of Gemlik Bay and Avsa and Pasalimani Islands. The innermost regions of Izmit Bay and western coasts of Tekirdag province meet with tsunami waves about 30 minutes after the earthquake. First waves arrive to Gelibolu and Lapseki in Dardanelle more than 1 hour after the event.

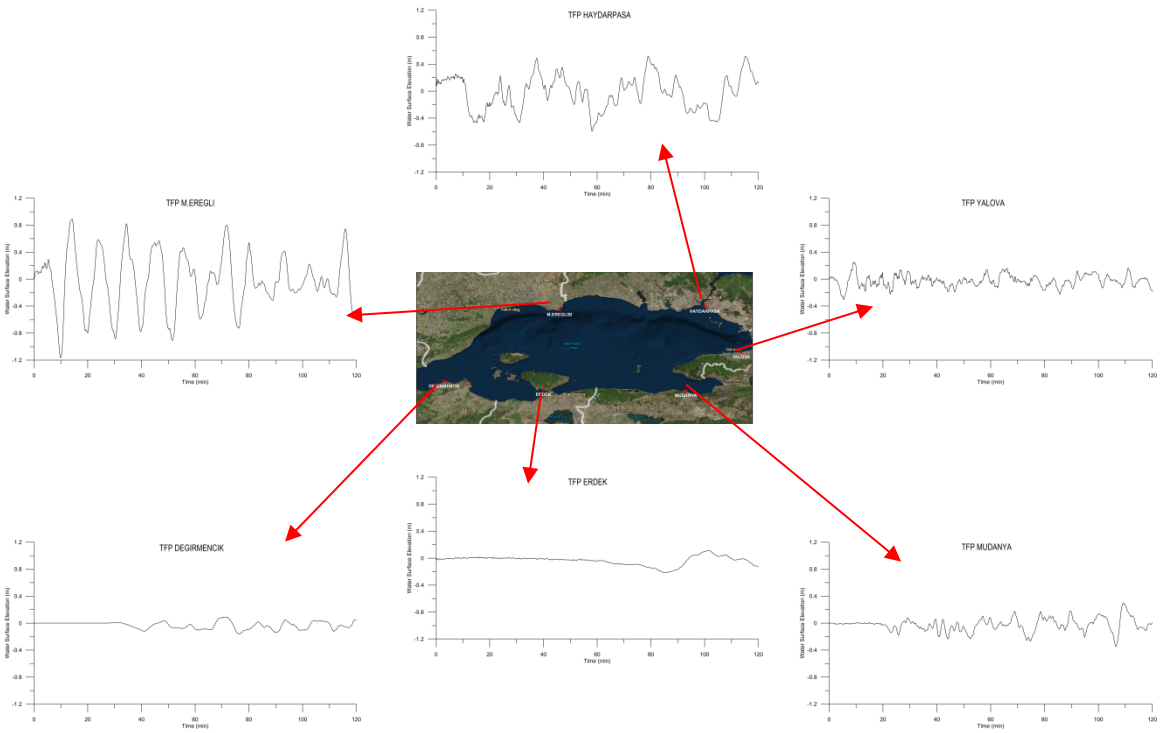

Figure 18: Water level fluctuations calculated for scenario SN09 at Tsunami Forecast Points in Marmara Sea. M. Eregli is again the TFP where the highest wave amplitudes are calculated. After a small water level increase in M. Eregli, the waves are withdrawn up to around -1.2m and then increase up to around 90cm. The water level continues fluctuating at this TFP approximately between these values with a period of about 10 minutes. The maximum positive and negative wave amplitudes calculated at Haydarpasa are about +60cm and -60cm. The first waves arrive to M. Eregli, Haydarpasa and Yalova in a short time after the earthquake. The wave amplitudes at Yalova, Mudanya, Degirmencik and Erdek are less than 30cm.

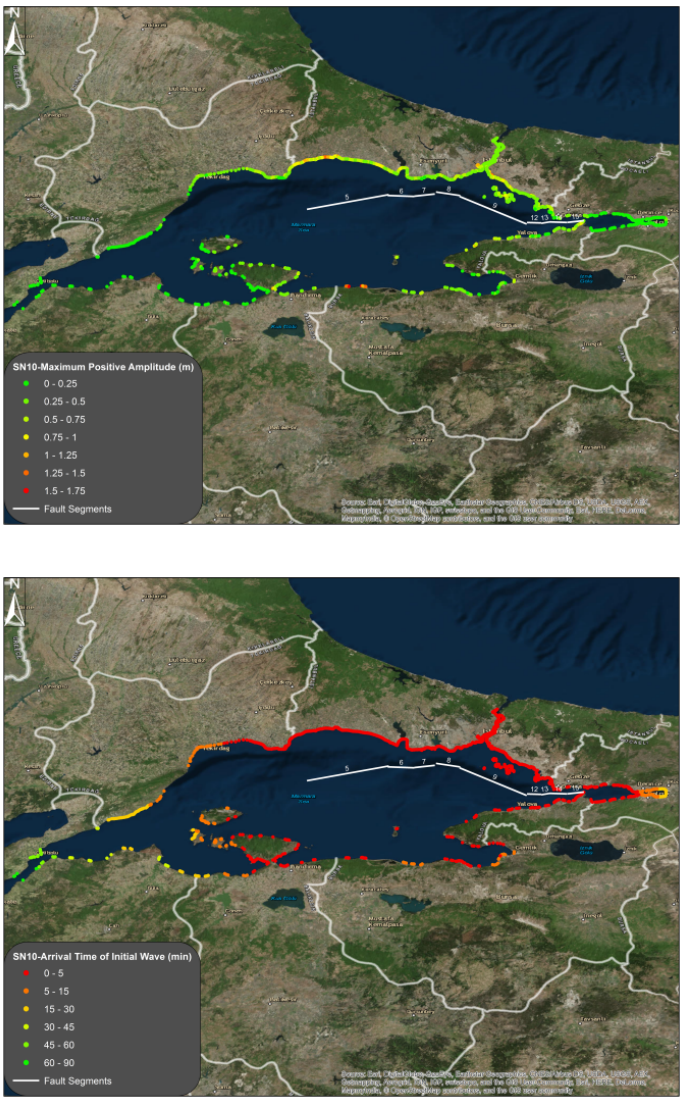

Figure 19: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN10. About 1m wave amplitudes are calculated along Kadikoy, Maltepe, and Kartal coasts at eastern Marmara sea, Silivri coasts at northern Marmara and at the entrance of Izmit Bay around Hersek. Wave amplitudes more than 1m are calculated at some locations in Kadikoy and Halic. Some locations in Silivri region, and Kursunlu and Bayramdere districts along southern Marmara would experience higher wave amplitudes around 1.7m. The first waves arrive to all coasts of Istanbul, western Izmit Bay up to Golcuk, Erdek peninsula, northern and southern coasts of Marmara sea and Gemlik Bay within 5 minutes. The waves would reach to Tekirdag city center, inner Izmit Bay and Gemlik Bay, western Marmara Island and western coasts of Tekirdag province within 15 minutes. Sarkoy, innermost Izmit Bay, the entrance of Dardanelle and Degirmencik have more time, about 30 minutes, for the arrival of first wave.

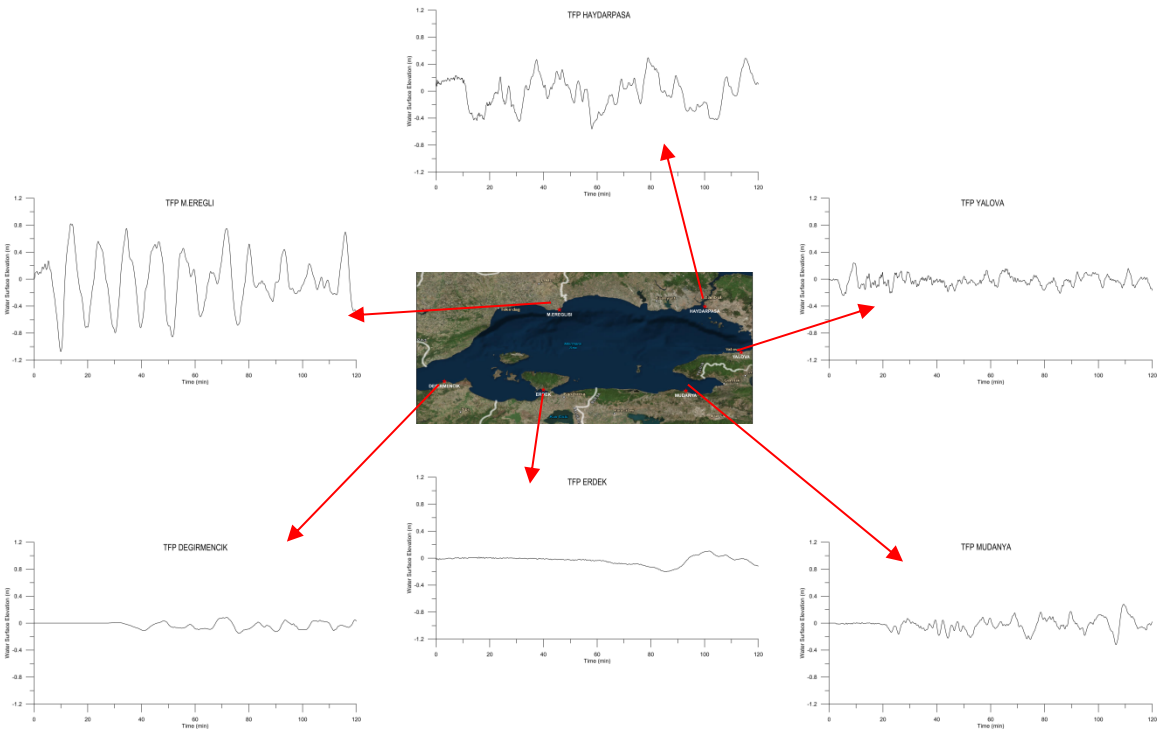

Figure 20: Water level fluctuations calculated for scenario SN10 at Tsunami Forecast Points in Marmara Sea. Higher water level fluctuations are calculated in M. Eregli that is in about minimum -1m and maximum +80cm height. The maximum positive and negative water levels calculated at Haydarpasa are +60cm and -50cm, respectively. The maximum wave amplitudes at Yalova, Mudanya, Erdek and Degirmencik are not more than 30cm. The waves first reach to M. Eregli, Haydarpasa and Mudanya within less than 5 minutes. The arrival time of first wave is calculated as around 20 minutes at Mudanya, 30 minutes at Degirmencik and 80minutes at Erdek.

Figure 21: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN11. The highest wave amplitudes up to 1.5m are calculated at Silivri coasts along northern Marmara and Kursunlu and Bayramdere districts along southern Marmara sea. About 1.2m wave amplitudes would be observed along Kadikoy, Maltepe, Kartal and Pendik coasts together with Halic, Prince Islands, Esenkoy district in Yalova province and the east coast of connection region between Erdek peninsula and main land. This scenario contains a fault segment lying through the innermost Izmit Bay. Therefore, the first waves arrive to all coasts of Izmit Bay, Yalova province, Istanbul together with Bosphorus, eastern Tekirdag province, southern and northern coasts of Gemlik Bay and Erdek peninsula within 5 minutes. The arrival time of first waves at Tekirdag city center, western Marmara Island, Pasalimani Island and the inner locations of Gemlik Bay are calculated as 15 minutes. Waves would reach to Avsa Island, Sarkoy coasts and Degirmencik about 30 minutes after the earthquake. The waves would arrive to Gelibolu and Lapseki more than 1 hour after the event.

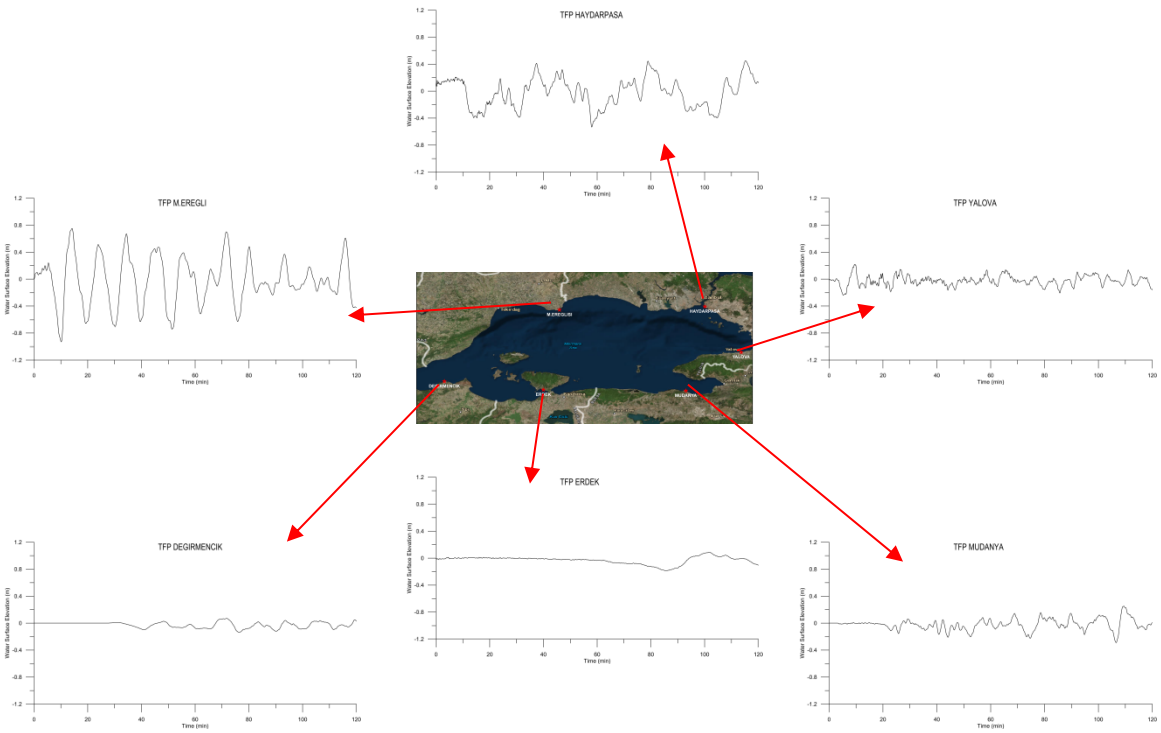

Figure 22: Water level fluctuations calculated for scenario SN11 at Tsunami Forecast Points in Marmara Sea. First waves would be observed in M. Eregli, Haydarpasa and Yalova within 5 minutes after the event. The maximum positive and negative wave amplitudes calculated at M. Eregli are +80cm and -80cm with the observation of first a leading depression wave. Wave amplitude would rise to 40cm and withdraw up to -50cm at Haydarpasa. The water level fluctuations at Yalova, Mudanya, Degirmencik and Erdek would not be more than 30cm.

Figure 23: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN12. According to this scenario, smaller wave amplitudes are calculated along Marmara coasts that are less than 25cm. This means that unless a submarine landslide happens, this scenario would not have potential to trigger tsunami in Marmara sea. The waves first arrive to southern ocasts of Prince Islands, western Yalova coasts and Istanbul coasts from B. Cekmece to Halic within 5 minutes.

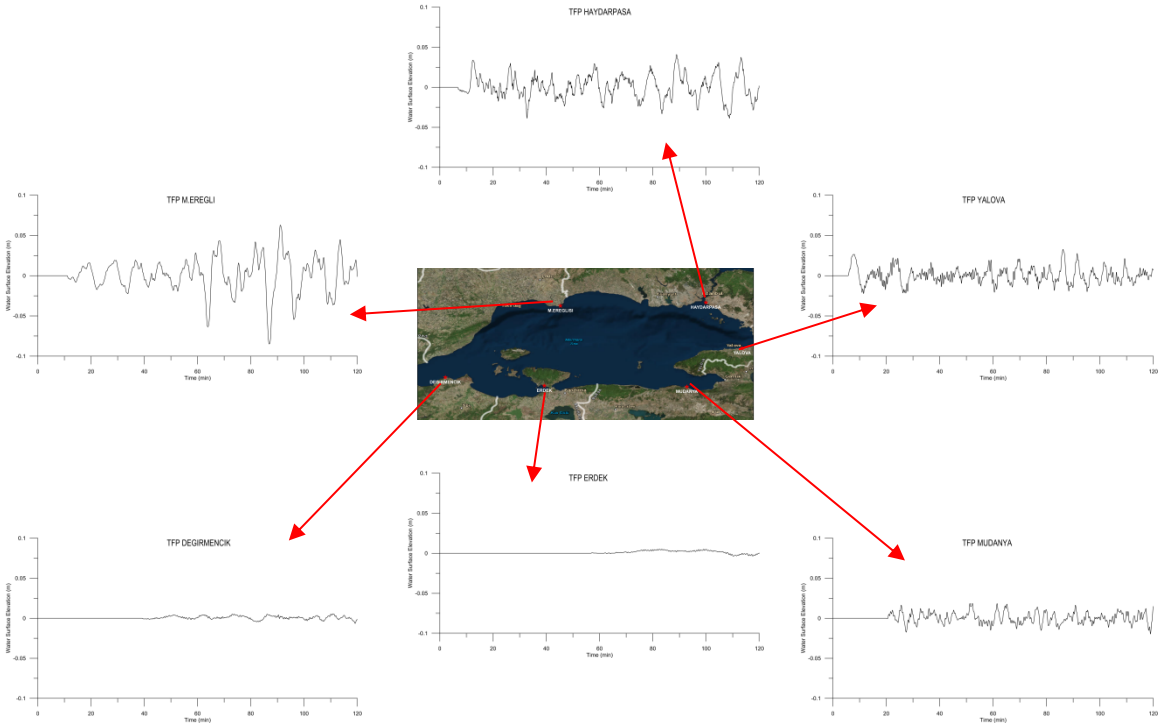

Figure 24: Water level fluctuations calculated for scenario SN12 at Tsunami Forecast Points in Marmara Sea. The positive and negative wave amplitudes at M. Eregli are calculated less than 10cm. The water levels at other TFPS are also negligible that are all less than 5cm. Almost no fluctuation is calculated at Erdek TFP.

Figure 25: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN13. Up to 1.5m maximum wave amplitudes were calculated along Kadıköy and Halic coasts. The wave amplitudes along Bakirkoy, Bostanci, Maltepe coasts and Prince Islands together with Yalova-Cinarcik coasts and the entrance of Izmit Bay reach up to 1m. Wave heights at Silivri and B. Cekmece coasts, Tekirdag, Erdek Peninsula and entrance of Dardanelle are negligible. The waves first arrive to Istanbul, Yalova and Gemlik coasts within 5 minutes. It takes 15 minutes for Silivri, Mudanya and eastern Tekirdag coasts to experience tsunami waves.

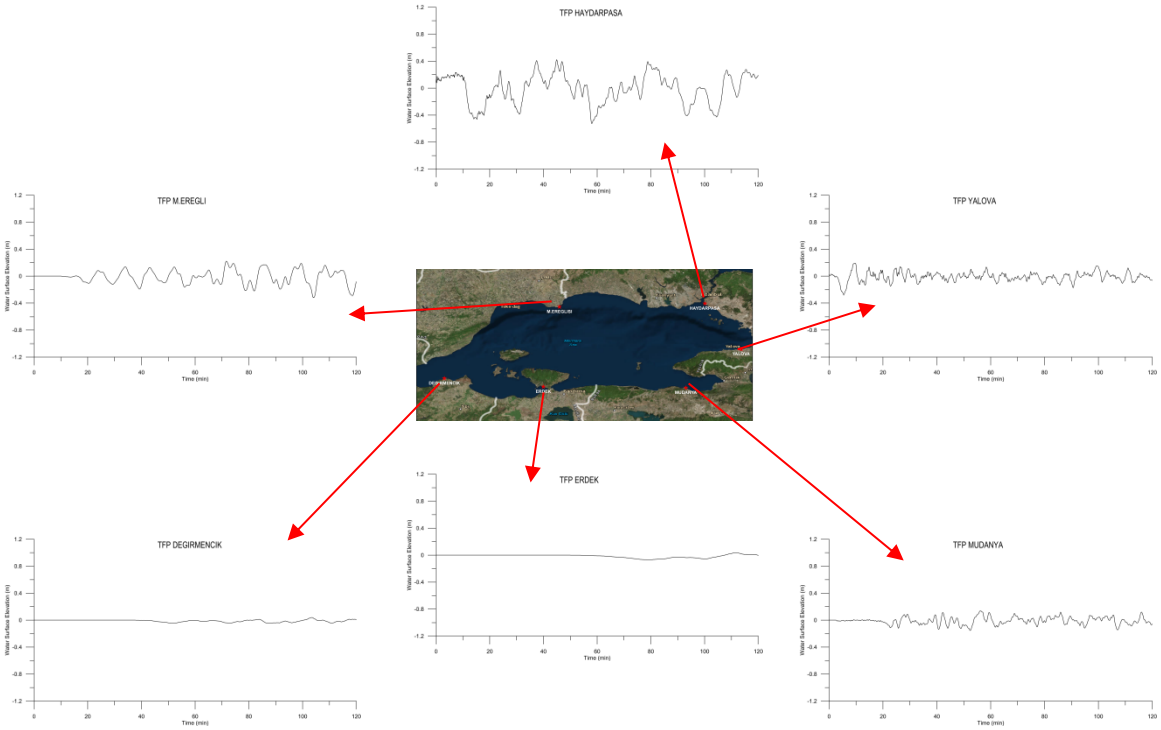

Figure 26: Water level fluctuations calculated for scenario SN13 at Tsunami Forecast Points in Marmara Sea. The fluctuation values show that TFPs do not affected from tsunami after this earthquake. The highest water level fluctuations are calculated in Haydarpasa with maximum positive and negative wave amplitudes as about +50cm and -50cm, respectively. The water levels in M. Eregli, Yalova, Mudanya, Erdek and Degirmencik are negligible.

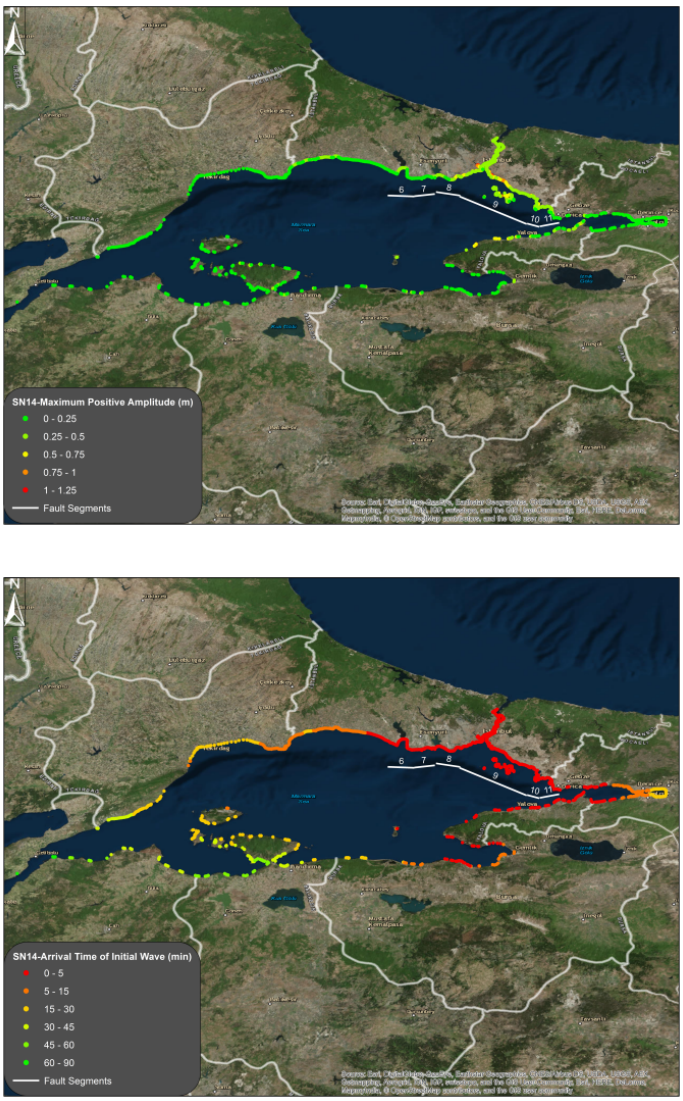

Figure 27: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN14. Similar with SN13, the highest wave amplitudes are calculated at Kadıkoy and Halic coasts as about 1.2m. Bostanci coasts would also experience significant tsunami waves around 1m. The maximum wave amplitudes at Maltepe coasts, Prince Islands and Cinarcik coasts would be about 50cm to 75cm. The first waves arrive to Istanbul coasts up to Silivri, Izmit Bay except inner locations, Yalova and Gemlik coasts within 5 minutes. Silivri coasts and inner parts of Izmit and Gemlik Bays would meet with first tsunami waves within 15 minutes.

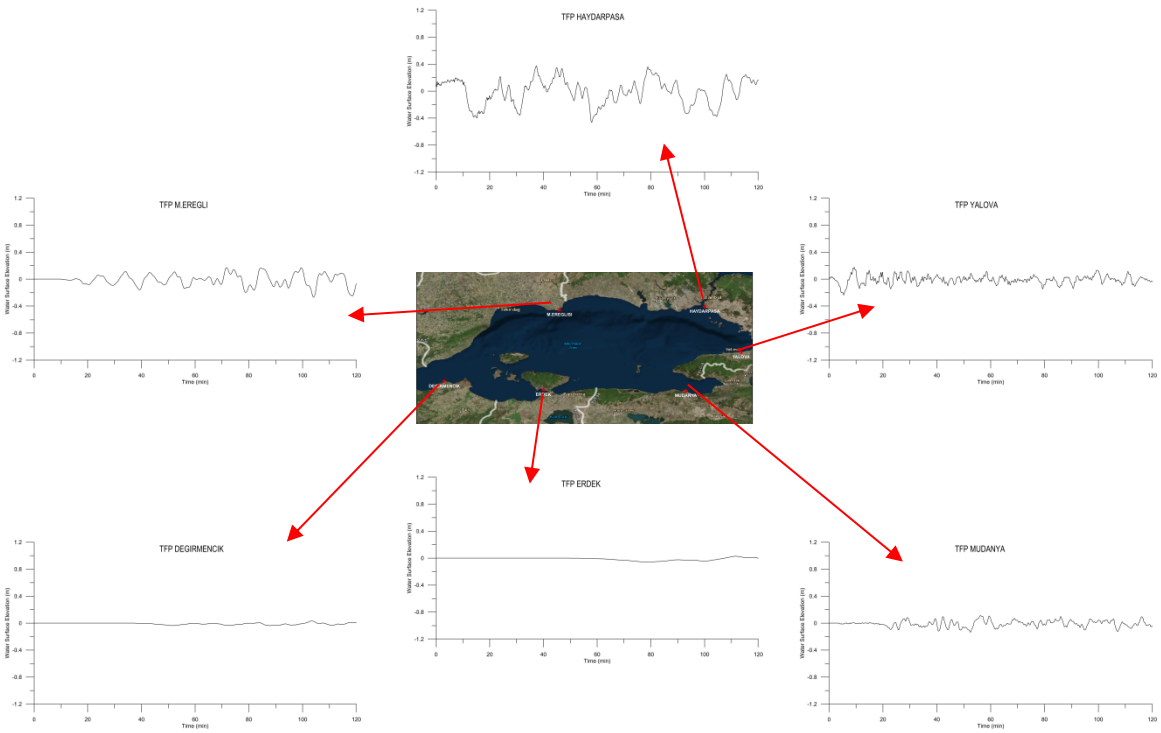

Figure 28: Water level fluctuations calculated for scenario SN14 at Tsunami Forecast Points in Marmara Sea. Except Haydarpasa, the water levels calculated at TFPs are negligible. In Haydarpasa, the water level reaches up to 40cm and withdraw to -40cm at minimum. We can say that no waves would be observed at Erdek and Degirmencik TFPs.

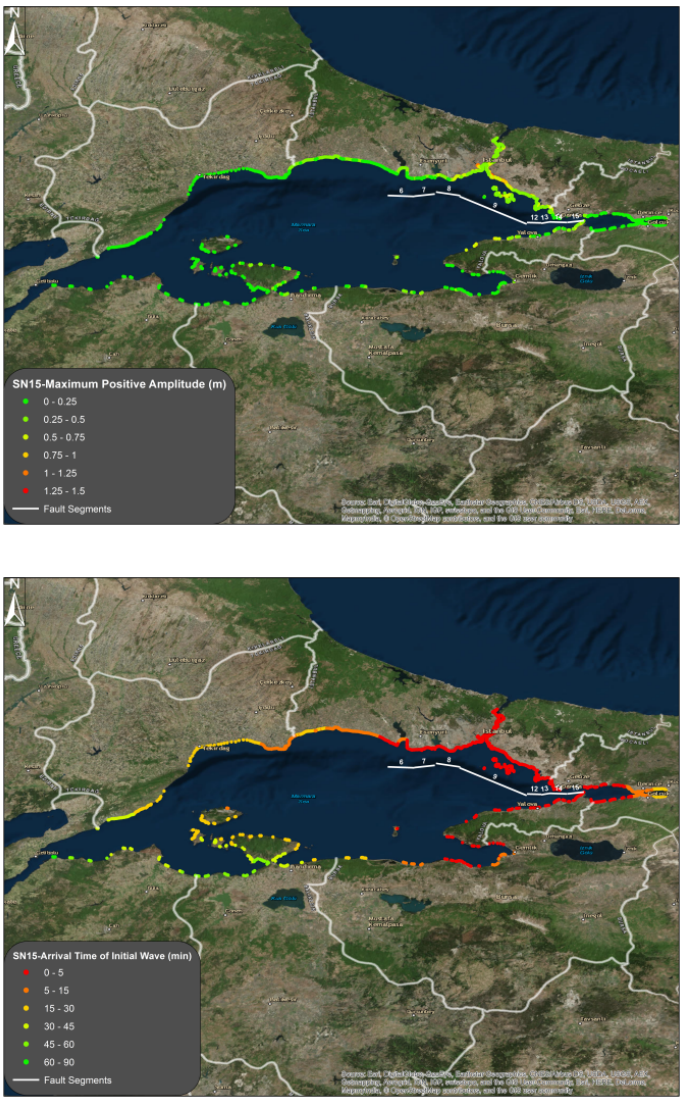

Figure 29: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN15. The maximum wave amplitudes are a bit higher than the values in SN14. The maximum wave amplitudes at Kadıkoy and Halic coasts reach up to 1.5m. Bostanci and Maltepe coasts would also experience significant tsunami waves around 1.2m. The wave amplitudes at the entrance of Izmit Bay and Yalova and Yenikapi coasts are calculated as around 70cm. The first waves would arrive to Istanbul coasts, Izmit Bay up to Golcuk coasts, Yalova and Gemlik coasts within 5 minutes. Silivri coasts, M. Eregli, inner locations of Izmit and Gemlik Bay would meet with tsunami waves within 15 minutes.

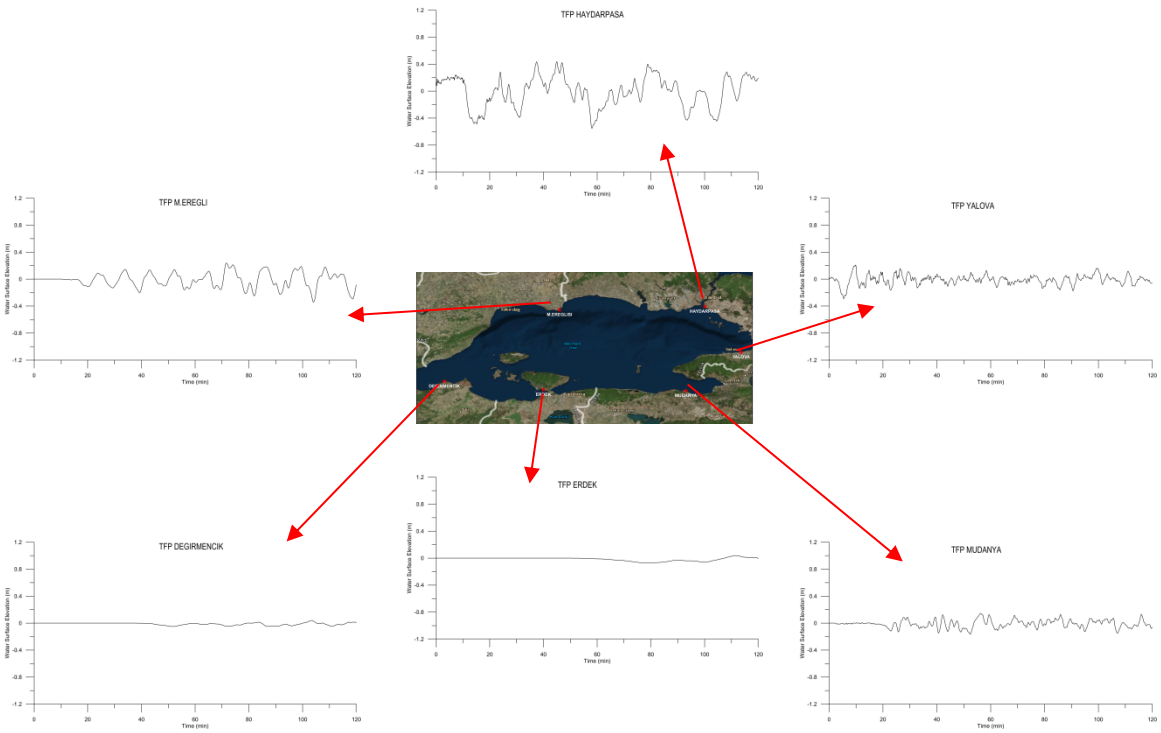

Figure 30: Water level fluctuations calculated for scenario SN15 at Tsunami Forecast Points in Marmara Sea. The water levels would be ±30cm at M. Eregli and ±40cm at Haydarpasa. The first wave at Yalova would also reach up to 40cm but then the secondary waves will reduce. There would be no wave effect at Erdek and Degirmencik.

Figure 31: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN16. The maximum wave amplitudes reach up to 1m at Halic, Kadikoy and Bostanci and up to 75cm at Maltepe, Kartal and Prince Islands, Yalova and Gebze coasts. The water surface elevations along Bosphorus and the entrance of Izmit Bay do not exceed 50cm. Initial tsunami waves reach to Istanbul and Yalova coasts and entire Izmit Bay within 5 minutes. M. Eregli, Silivri and B. Cekmece coasts together with Gemlik bay will meet with the first tsunami waves within 15 minutes. Tekirdag coasts, Bandirma and Erdek Peninsula would have half an hour before observing first tsunami waves.

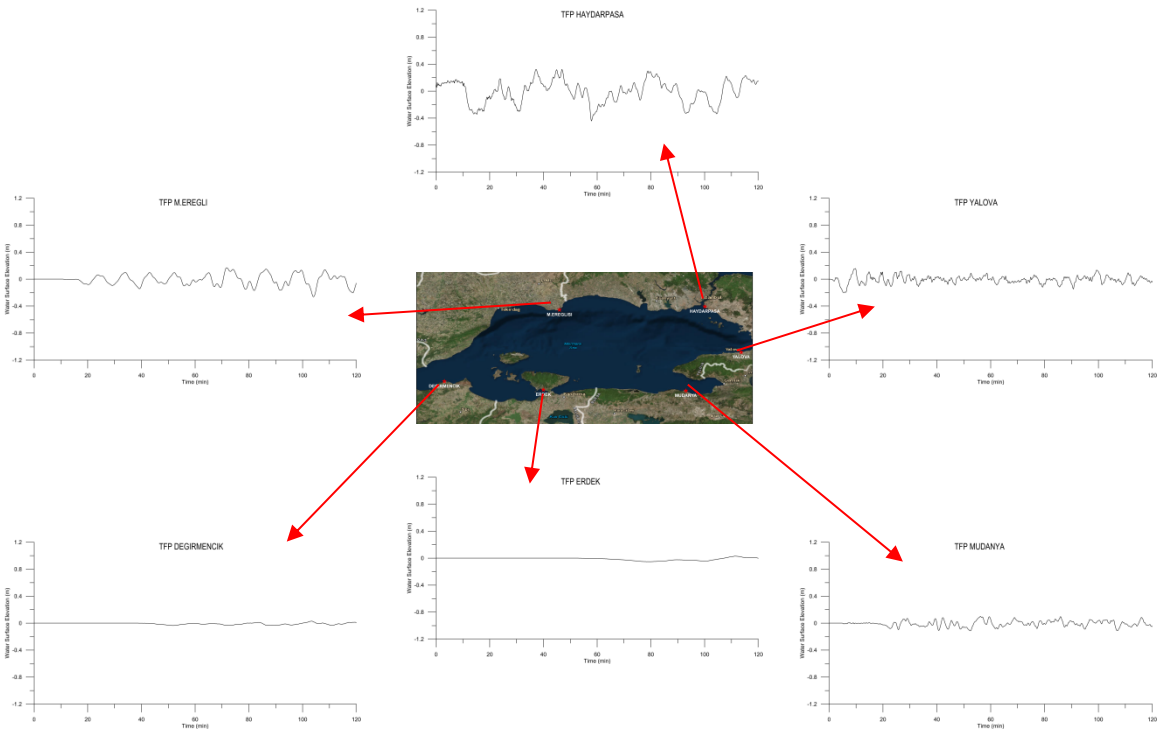

Figure 32: Water level fluctuations calculated for scenario SN16 at Tsunami Forecast Points in Marmara Sea. The highest wave amplitudes are calculated at Haydarpasa TFP with the maximum value of 40cm and minimum value of -40cm. The range of water level fluctuations at other TFPs may be negligible.

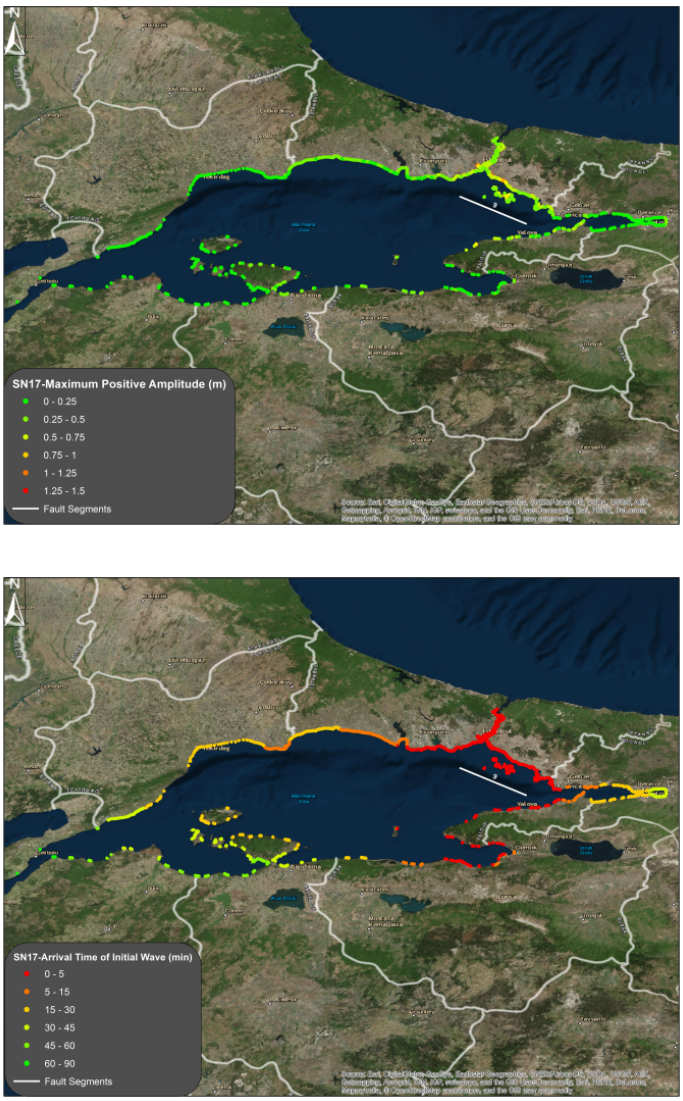

Figure 33: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN17. The wave amplitudes reach up to 1.5m at some locations of Kadikoy region, 1.2m at Halic and Bostanci, and 1m at Prince Islands. Comparing with SN16, tsunami wave amplitudes are lower and the tsunami-affected areas are fewer. First tsunami waves would arrive to Istanbul, Prince Islands, Yalova and Gemlik coasts within 5 minutes. The entrance of Izmit Bay, Silivri and M. Eregli coasts would observe first tsunami waves within 15 minutes.

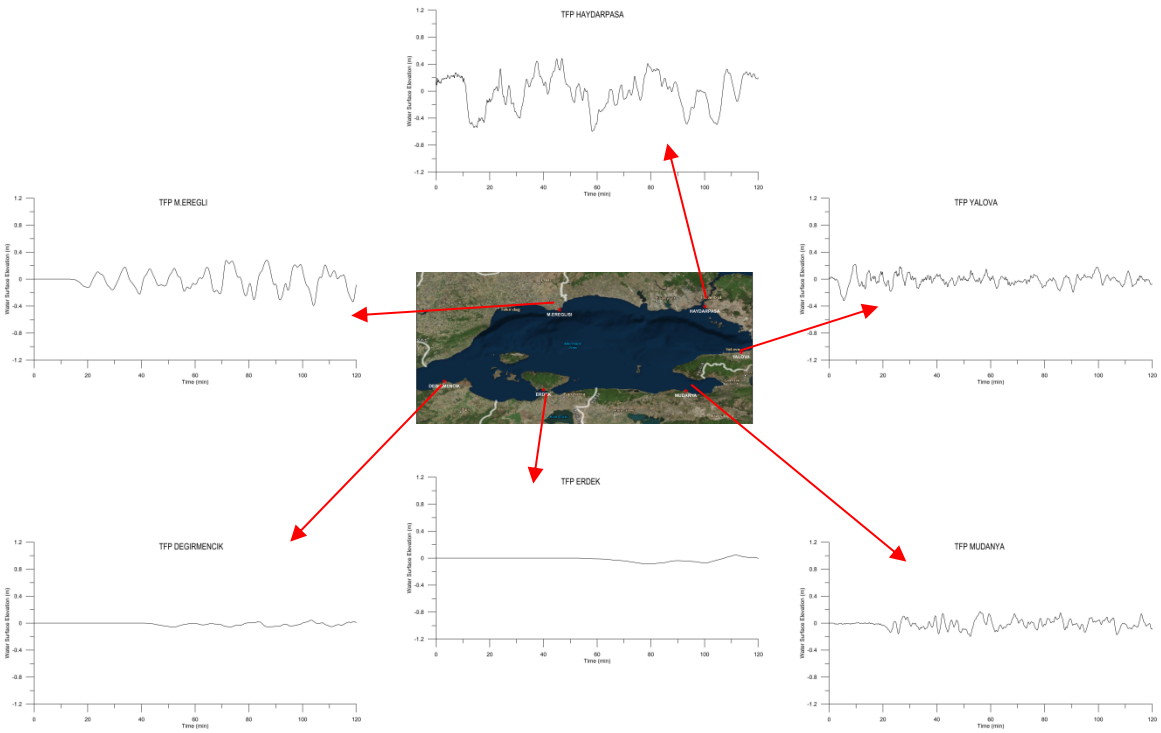

Figure 34: Water level fluctuations calculated for scenario SN17 at Tsunami Forecast Points in Marmara Sea. The highest wave amplitudes would be observed at Haydarpasa. The first wave at Haydarpasa would be observed as leading depression wave with around -60cm withdraw and then the subsequent waves would rise up to maximum 50cm. The water level would fluctuate between ±30cm at M. Eregli and ±20cm at Mudanya. First wave at Yalova would reach up to 20cm but the secondary waves may be negligible. No tsunami wave would be observed at Degirmencik and Erdek.

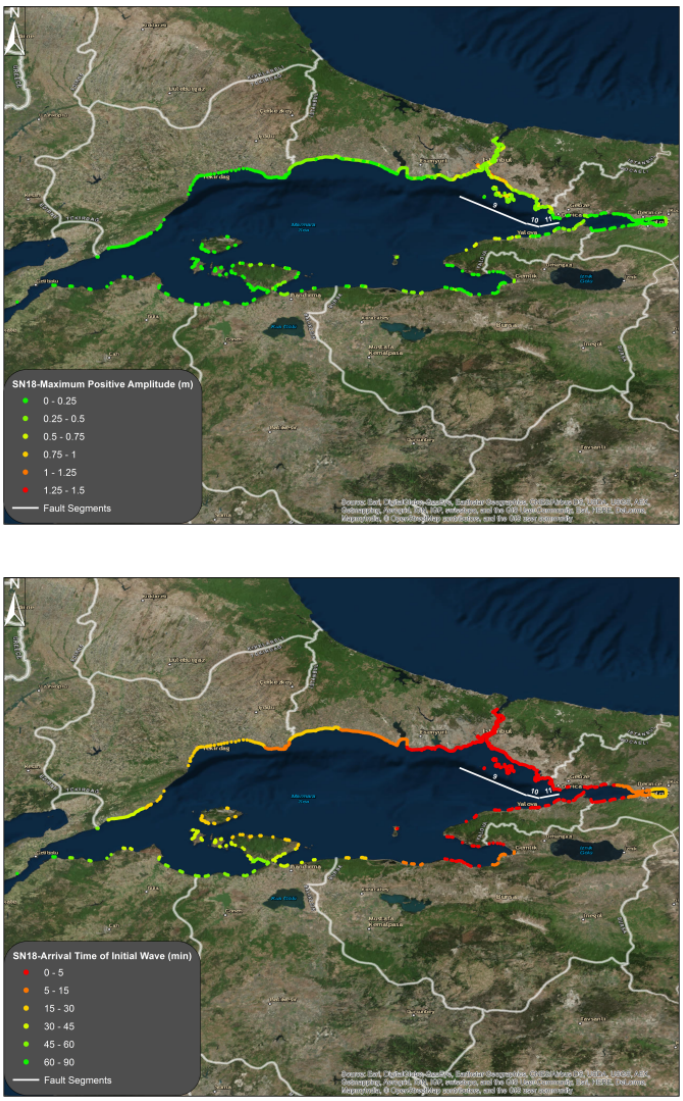

Figure 35: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN18. Maximum wave amplitudes calculated at Kadikoy would reach up to 1.5m for this scenario. Waves with the amplitudes of around 1m are calculated at Bostanci and Maltepe coasts. The water surface elevation would be less than 1m in Prince Islands, Pendik, Gebze and Yalova coasts. The tsunami effect at Tekirdag, Bandirma, Erdek, Gemlik and Izmit Bays would be negligible. The first waves would arrive to Istanbul and Bosphorus coasts, Prince Islands, western Izmit Bay up to Golcuk, Yalova and Gemlik coasts within 5 minutes.

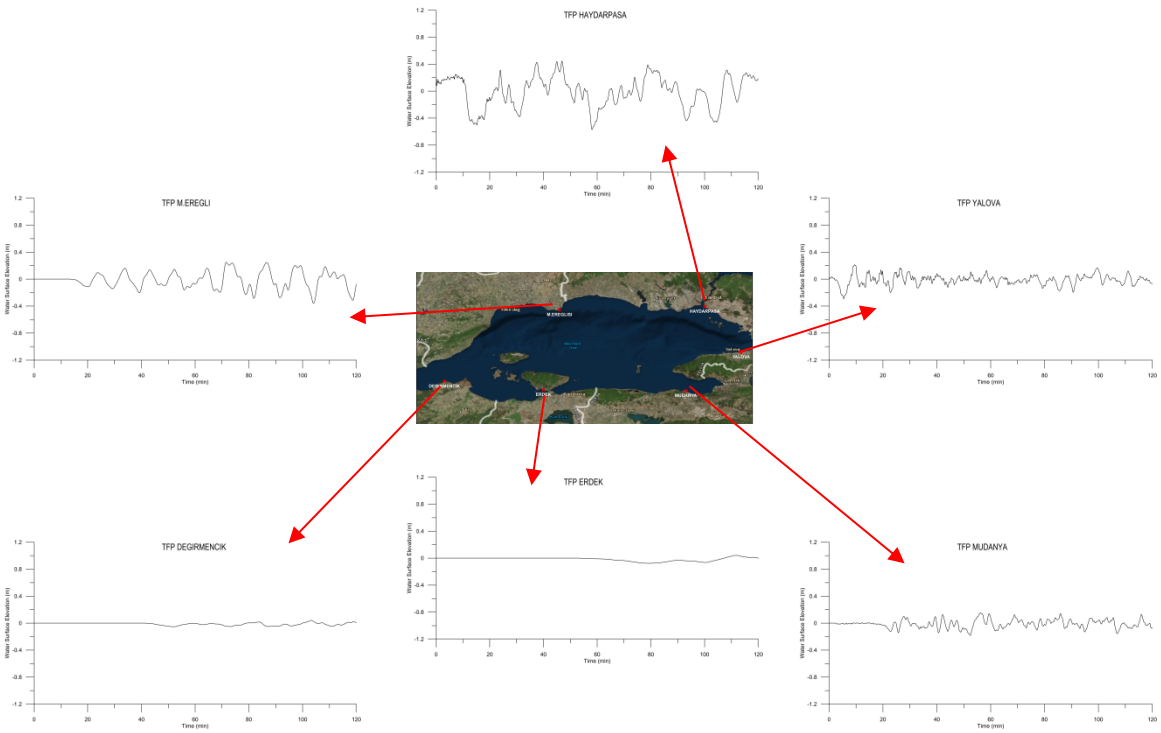

Figure 36: Water level fluctuations calculated for scenario SN18 at Tsunami Forecast Points in Marmara Sea. Similar with SN13, SN14, SN15, SN16 and SN17, the highest water levels are calculated at Haydarpasa with maximum positive and negative values of +40cm and -60cm. The water levels at M. Eregli, Yalova and Mudanya would be less than 30cm. No tsunami observation would be expected at Degirmencik and Erdek for this scenario.

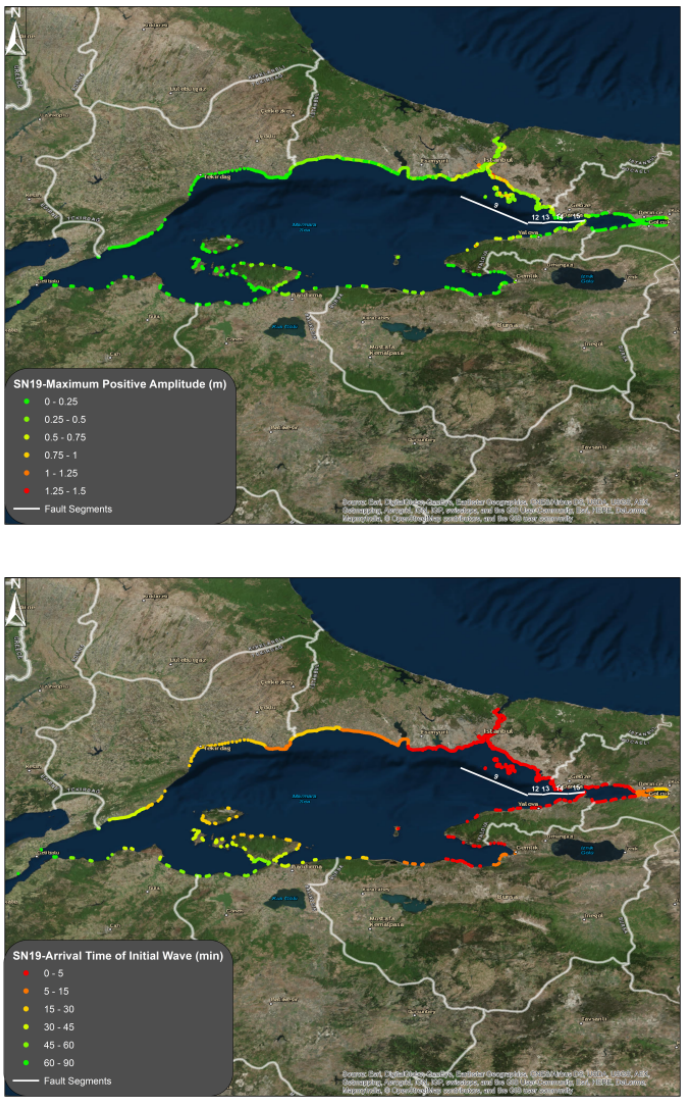

Figure 37: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN19. The maximum wave amplitudes would reach up to 1.5m at Kadikoy, 1.25m at Halic and around 1m at Bostanci, Prince Islands and western Yalova coasts. The first waves reach to Istanbul, Bosphorus, Izmit and Gemlik Bays, Prince Islands and Yalova coasts within 5 minutes. M. Eregli Mudanya, eastern Silivri coasts and inner locations of Izmit and Gemlik Bays would observe first tsunami waves within 15 minutes.

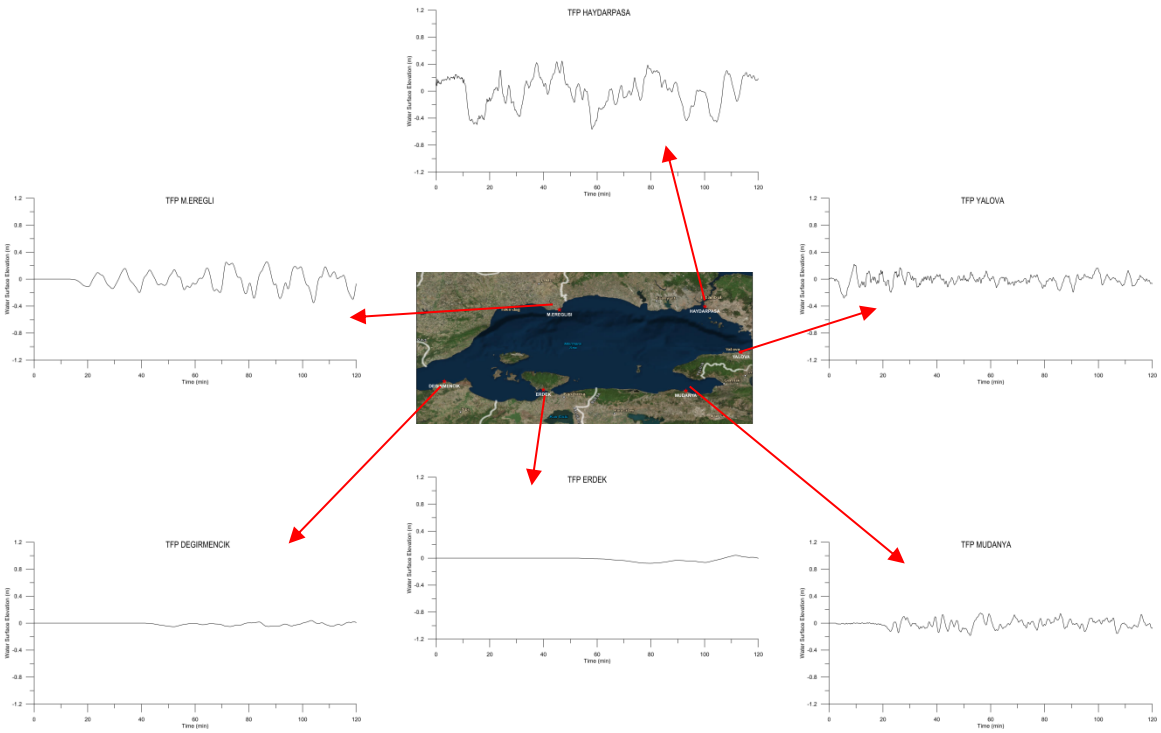

Figure 38: Water level fluctuations calculated for scenario SN19 at Tsunami Forecast Points in Marmara Sea. The highest water levels are calculated at Haydarpasa with maximum positive and negative values of +40cm and -60cm. The water levels at M. Eregli, Yalova and Mudanya would be less than 40cm. No tsunami effect would be observed at Degirmencik and Erdek.

Figure 39: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN20. The highest wave amplitudes are calculated at Halic and Kadikoy as up to 2m. Wave amplitudes would reach up to 75cm at Bostanci and Yenikapi coasts, Prince Islands and western Yalova coasts. The other regions would observe tsunami waves less than 50cm. The first waves would arrive to Istanbul, Bosphorus, all coasts of Izmit Bay, Yalova coasts, and northern coasts of Gemlik within 5 minutes.

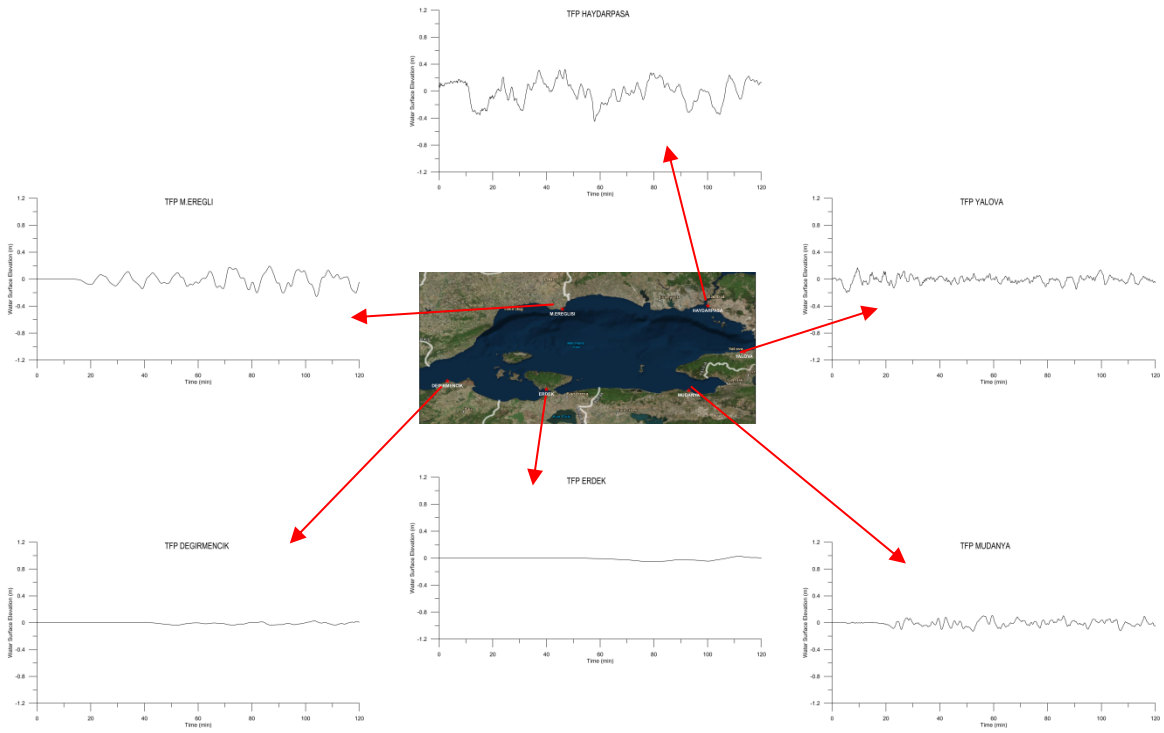

Figure 40: Water level fluctuations calculated for scenario SN20 at Tsunami Forecast Points in Marmara Sea. The highest water levels are calculated at Haydarpasa with maximum positive and negative values of +40cm and -40cm. The water levels at M. Eregli, Yalova and Mudanya would be less than 20cm. Tsunami wave amplitudes at Degirmencik and Erdek are negligible.

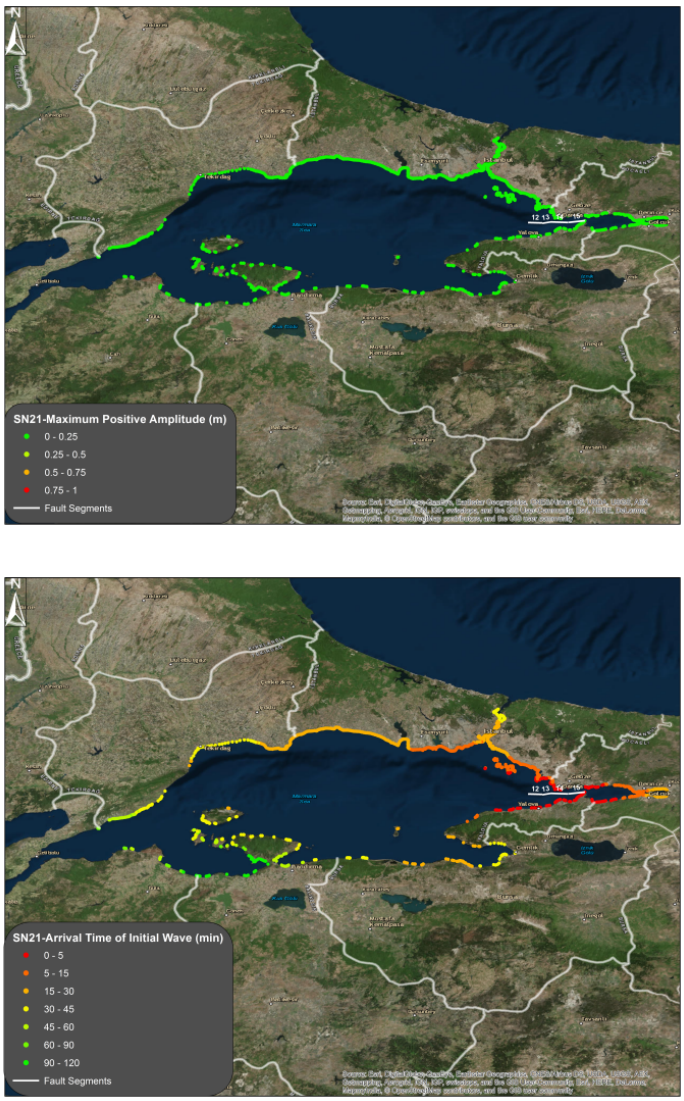

Figure 41: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN21. The maximum wave amplitudes calculated for this scenario are less than 25cm in entire Marmara Sea.

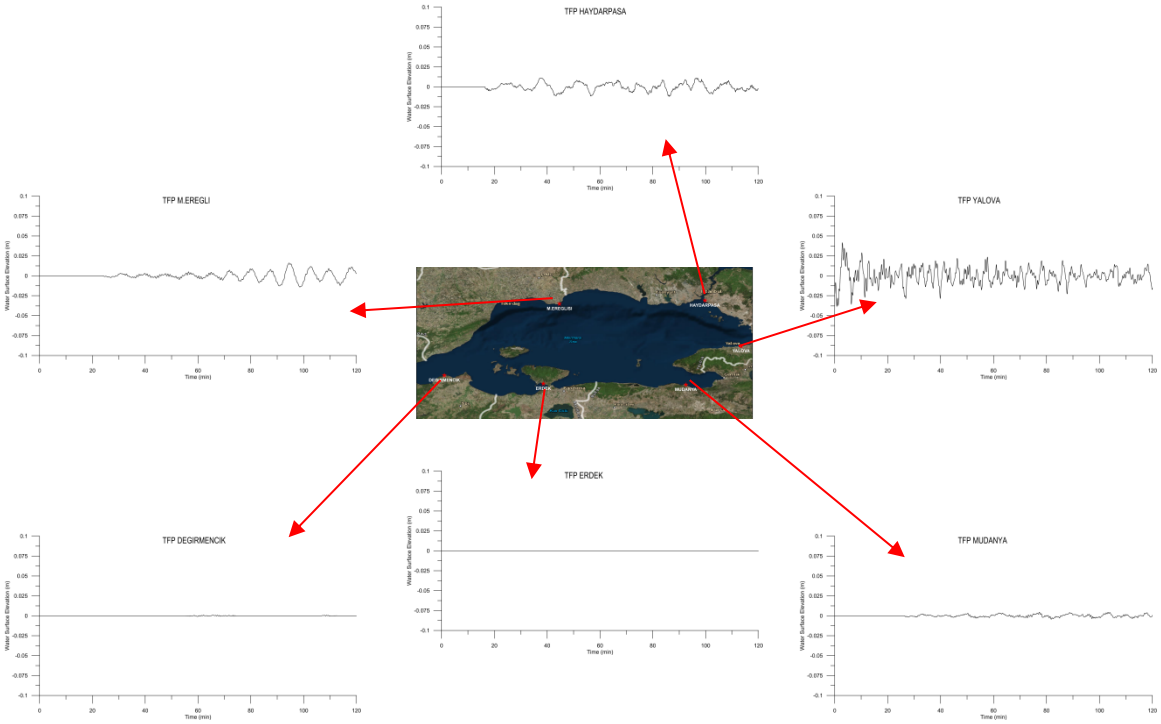

Figure 42: Water level fluctuations calculated for scenario SN21 at Tsunami Forecast Points in Marmara Sea. The water levels calculated at all TFPs are negligible.

Figure 43: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN22. The maximum wave amplitudes calculated for this scenario are less than 25cm in entire Marmara Sea.

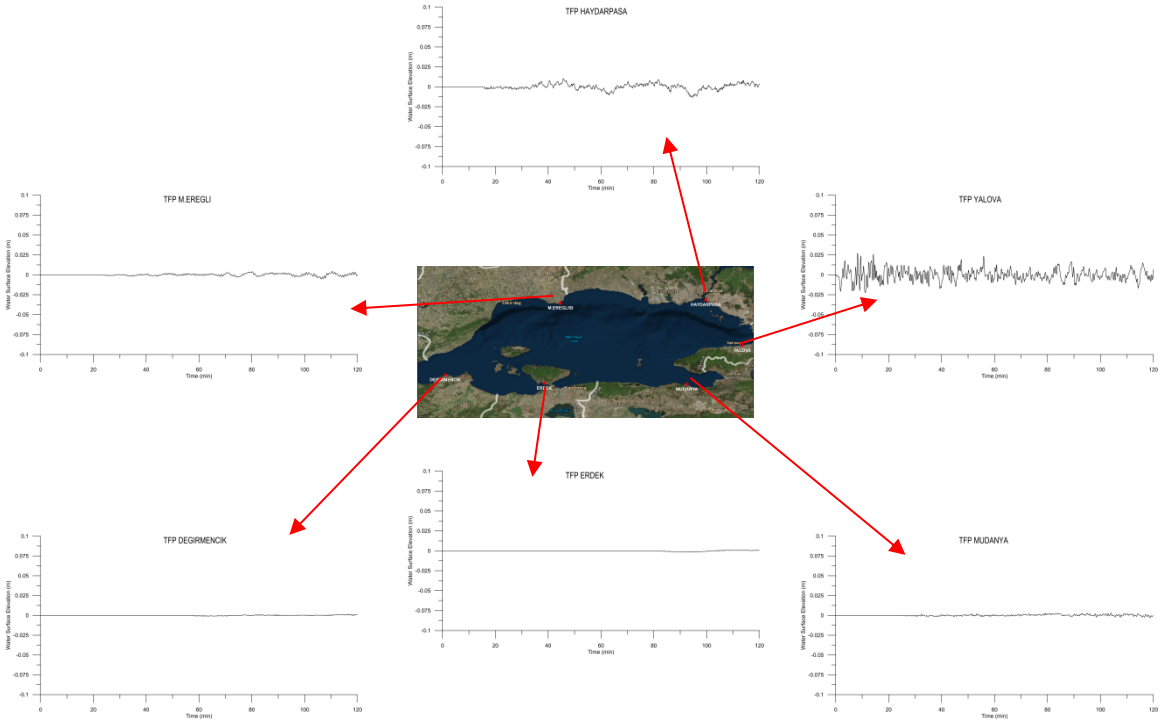

Figure 44: Water level fluctuations calculated for scenario SN22 at Tsunami Forecast Points in Marmara Sea. The water levels calculated at all TFPs are negligible.

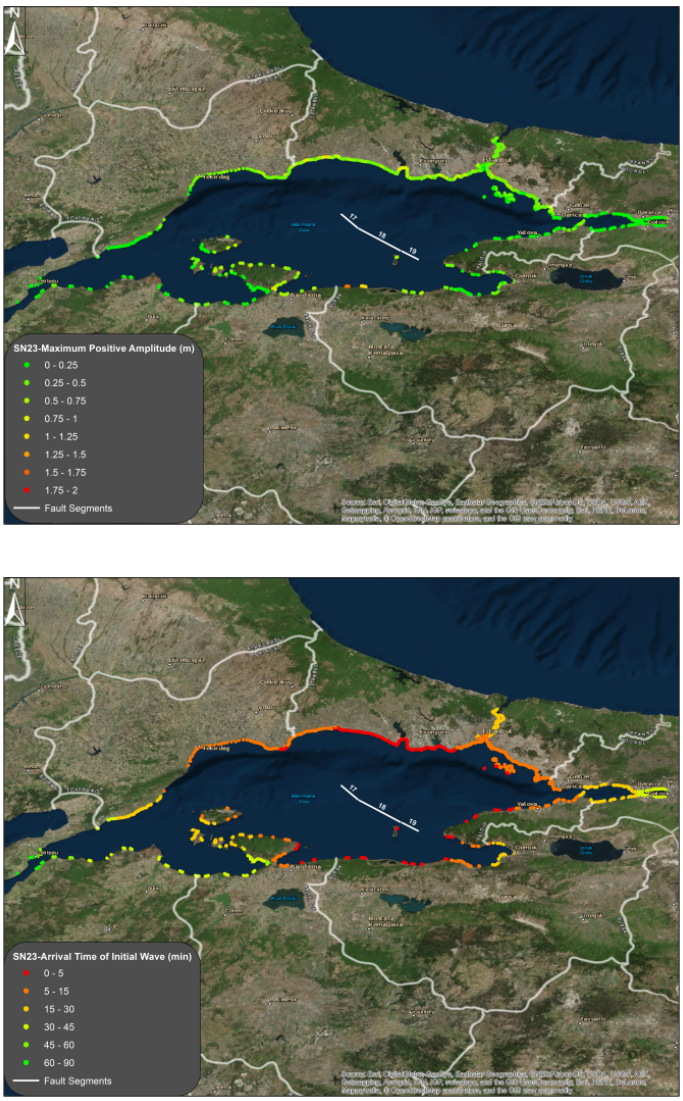

Figure 45: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN23. The maximum wave amplitudes would reach up to 2m at Kursunlu district in Bursa and around 1.5m along Silivri coasts. Around 1m wave amplitudes are calculated at M. Eregli coasts and Bandirma. The first waves arrive to Silivri, B. Cekmece, Bakirkoy, Yalova-Cinarcik, Kursunlu, Bayramdere, Mudanya, Yenice and southern coasts of Prince Islands within 5 minutes. The arrival times of first waves would be between 5 and 15 minutes at Tekirdag, Kadikoy, Bostanci, Maltepe, Kartal, Pendik, Gebze and eastern Yalova coasts.

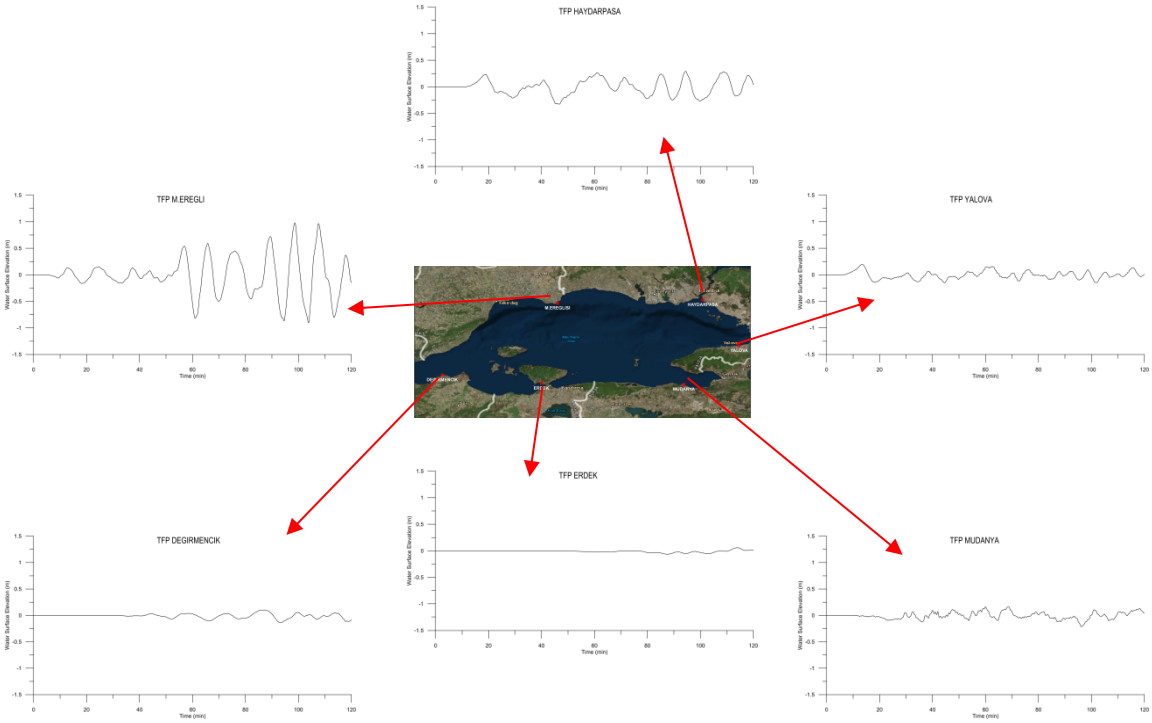

Figure 46: Water level fluctuations calculated for scenario SN23 at Tsunami Forecast Points in Marmara Sea. The highest water level fluctuations are calculated at M. Eregli where the waves reach up to 1m and would withdraw up to -1m. The wave amplitudes at Haydarpasa, Yalova and Mudanya would be less than 30cm. Tsunami effects at Degirmencik and Erdek may be negligible.

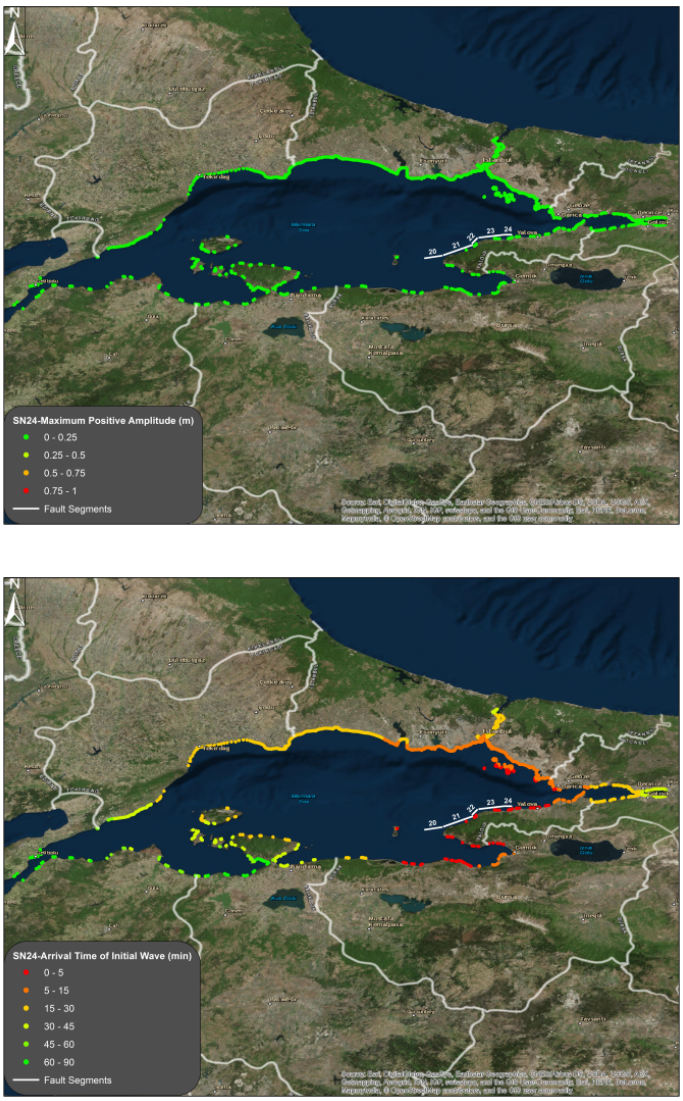

Figure 47: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN24. The maximum wave amplitudes calculated for this scenario are less than 25cm in entire Marmara Sea.

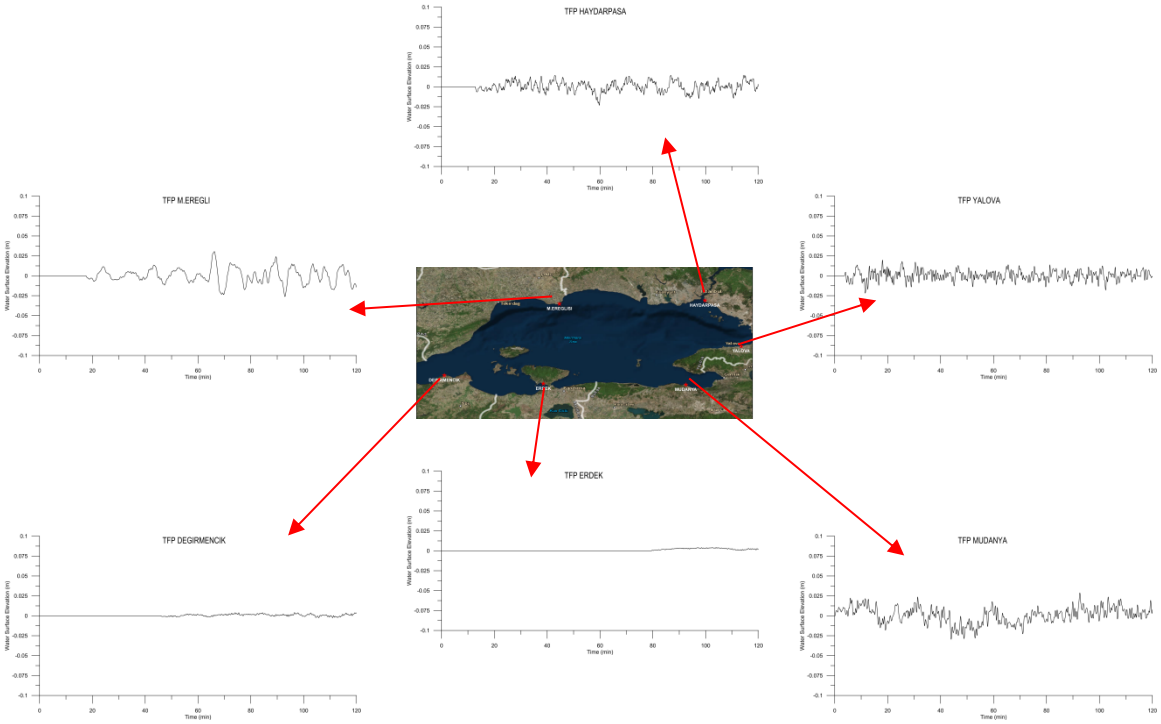

Figure 48: Water level fluctuations calculated for scenario SN24 at Tsunami Forecast Points in Marmara Sea. The water level fluctuations at all TFPs would be negligible.

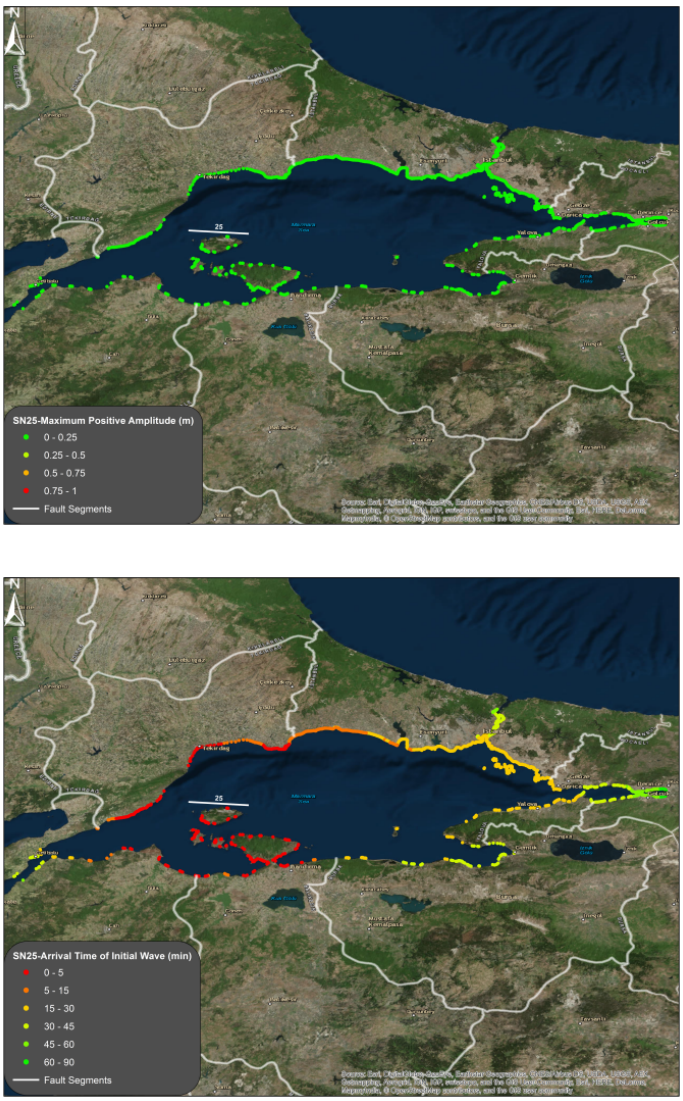

Figure 49: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN25. The maximum wave amplitudes calculated for this scenario are less than 25cm in entire Marmara Sea.

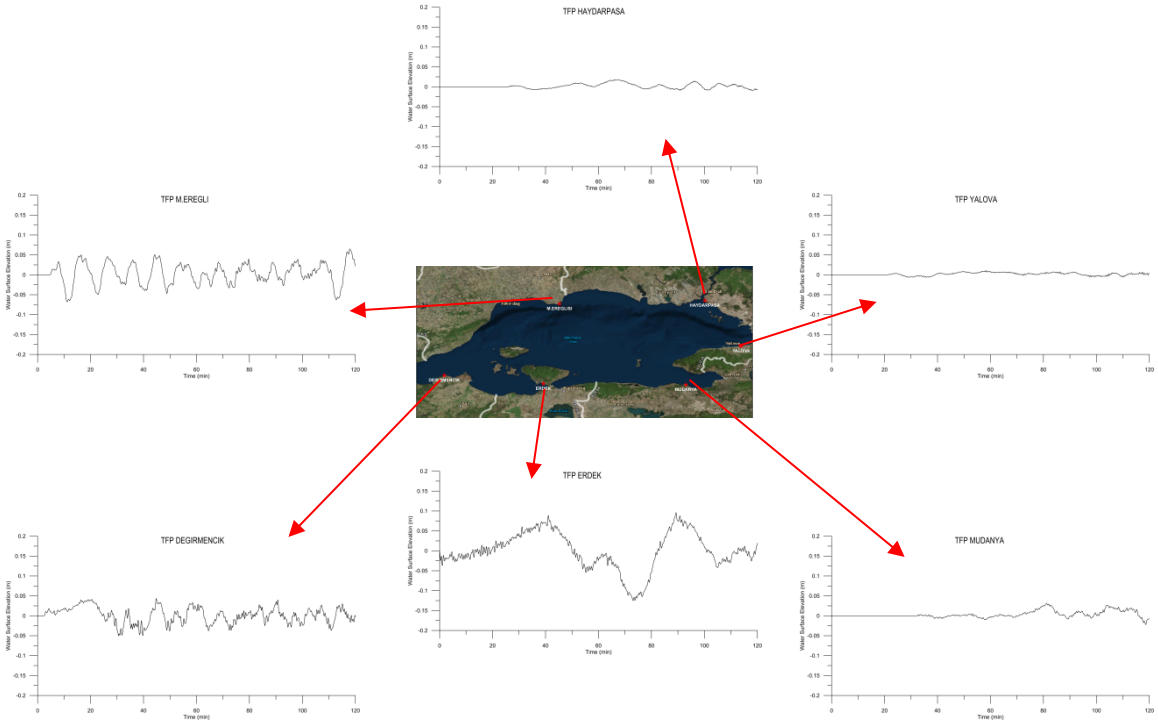

Figure 50: Water level fluctuations calculated for scenario SN25 at Tsunami Forecast Points in Marmara Sea. Water levels at all TFPs would be negligible.

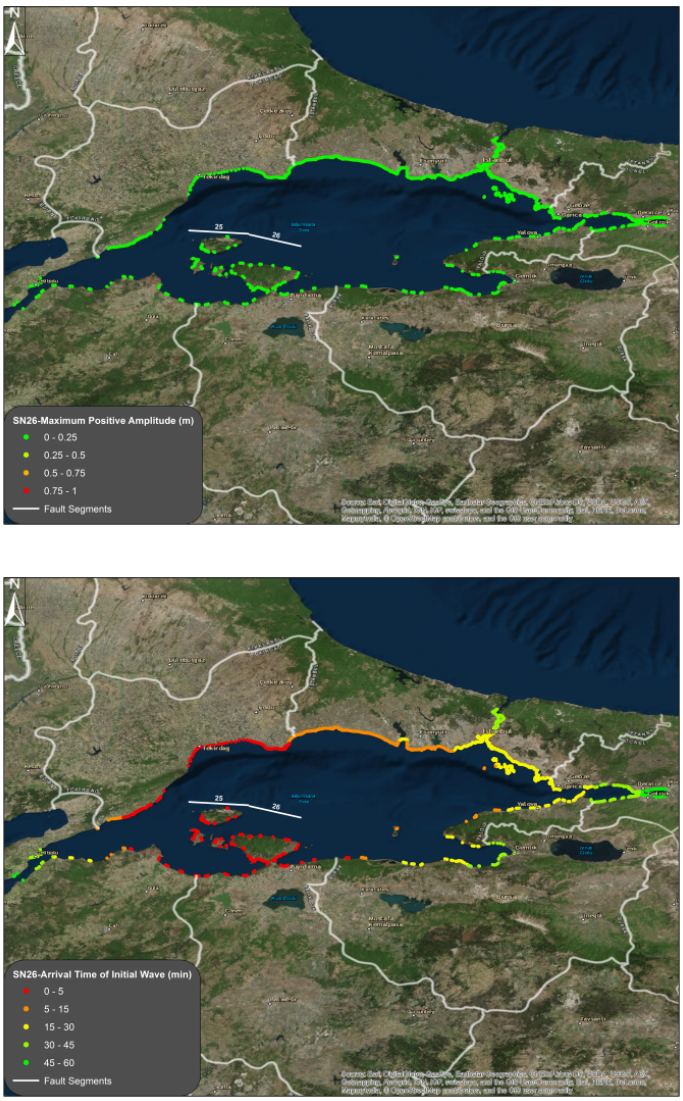

Figure 51: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN26. The maximum wave amplitudes calculated for this scenario are less than 25cm in entire Marmara Sea.

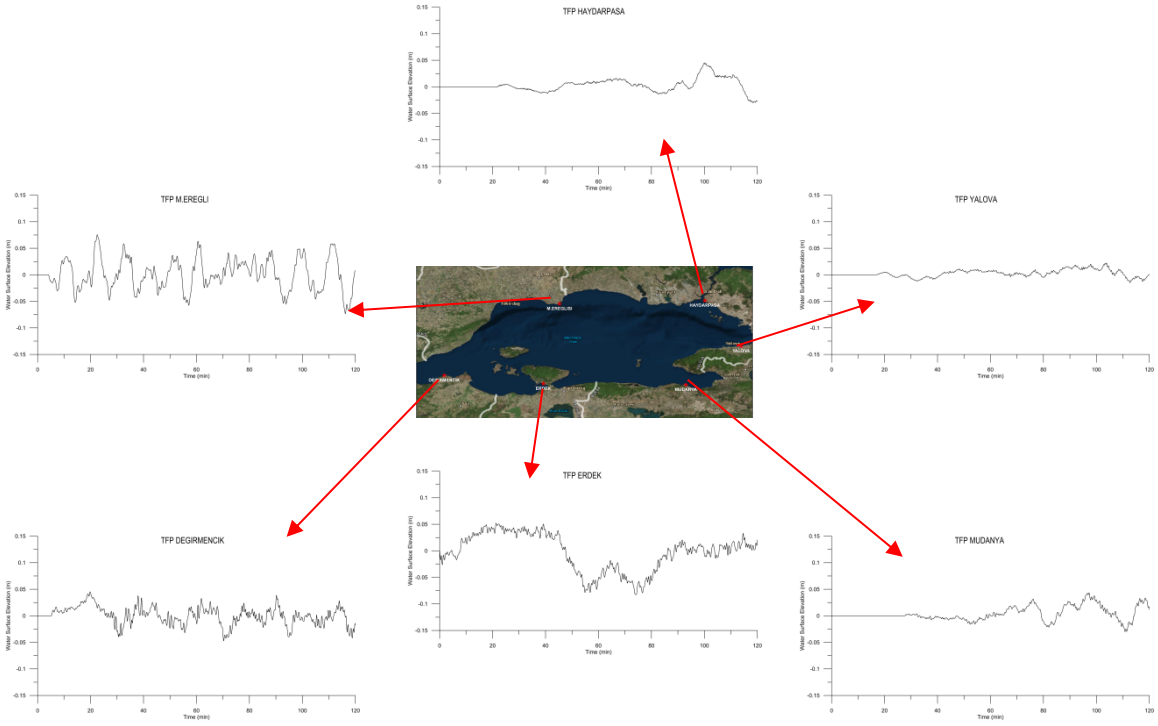

Figure 52: Water level fluctuations calculated for scenario SN26 at Tsunami Forecast Points in Marmara Sea. Water levels at all TFPs are negligible.

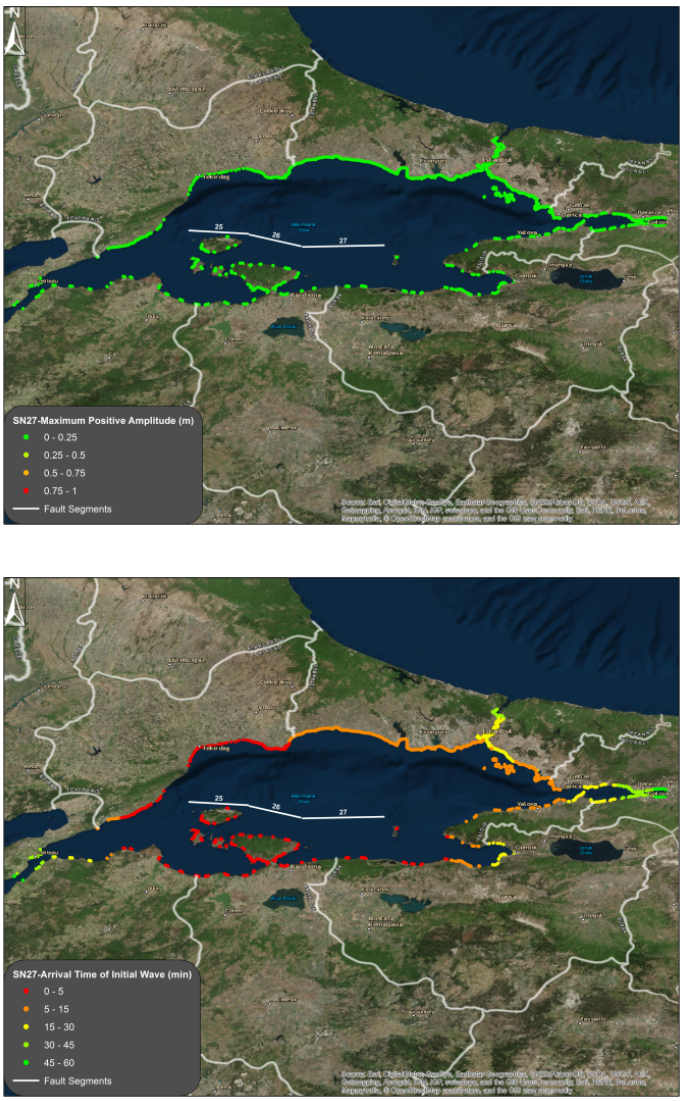

Figure 53: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN27. The maximum wave amplitudes calculated for this scenario are less than 25cm in entire Marmara Sea.

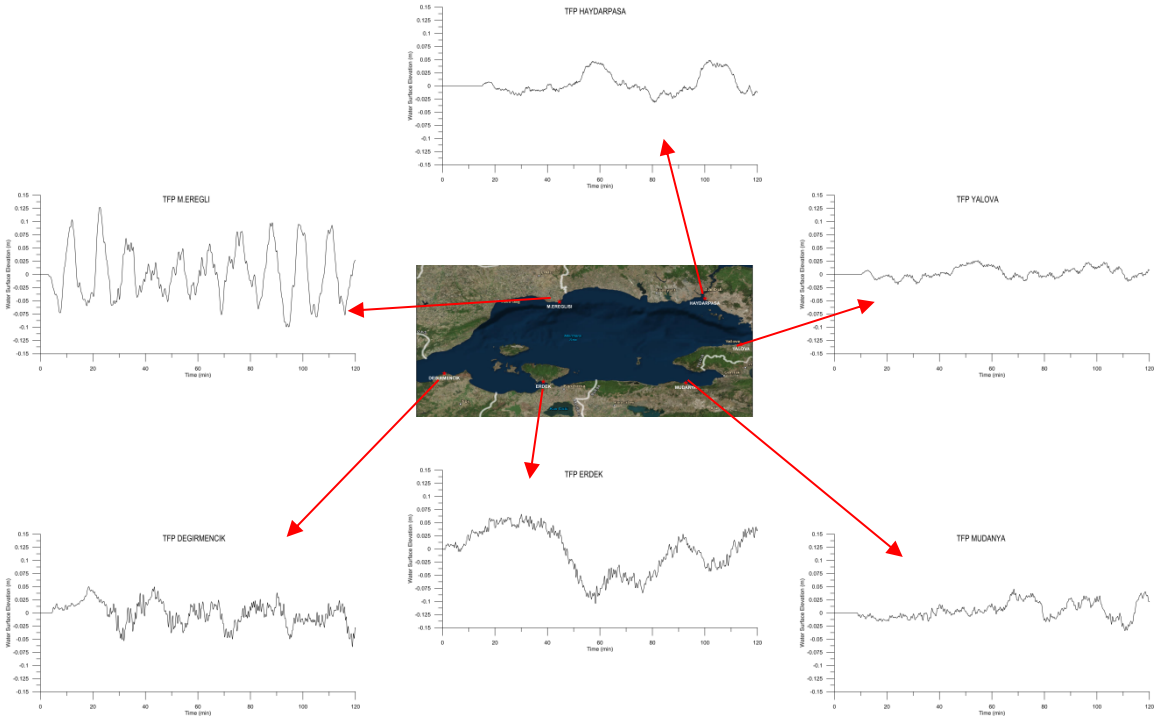

Figure 54: Water level fluctuations calculated for scenario SN27 at Tsunami Forecast Points in Marmara Sea. Water levels at all TFPs are negligible.

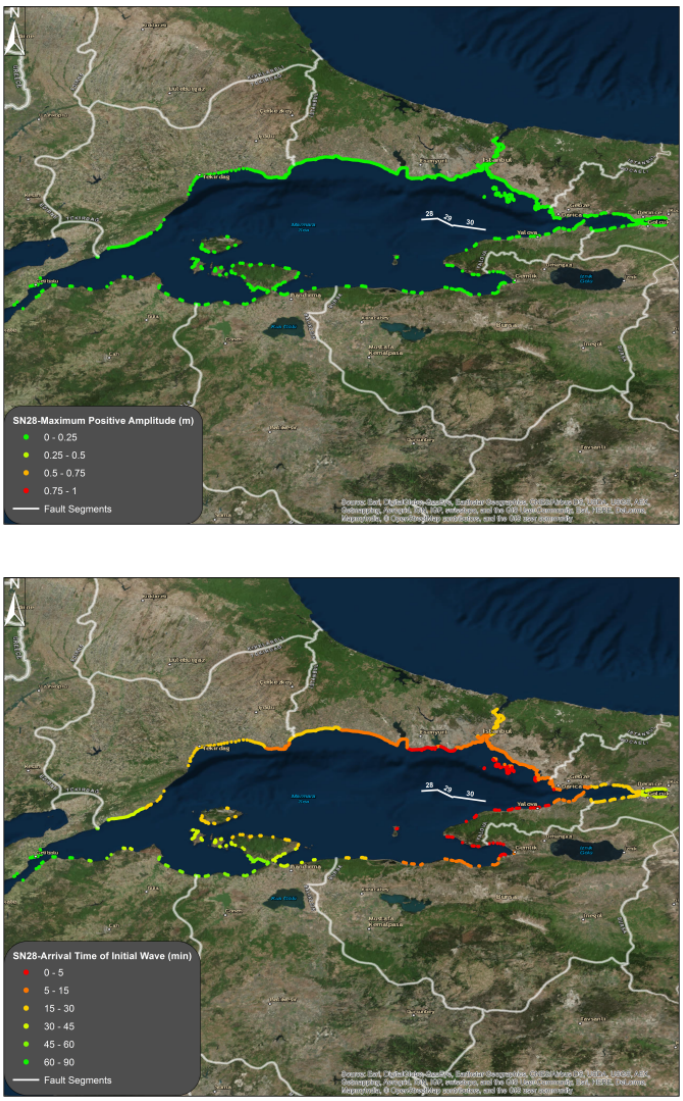

Figure 55: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN28. The maximum wave amplitudes calculated for this scenario are less than 25cm in entire Marmara Sea.

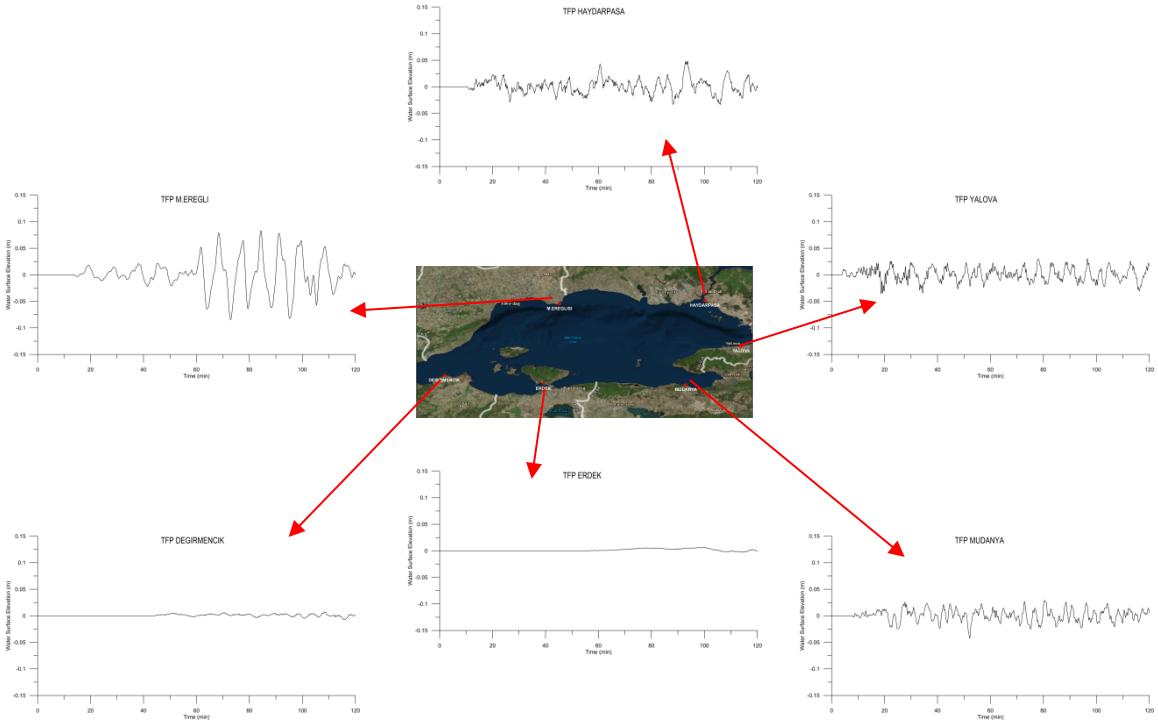

Figure 56: Water level fluctuations calculated for scenario SN28 at Tsunami Forecast Points in Marmara Sea. Water levels at all TFPs are negligible.

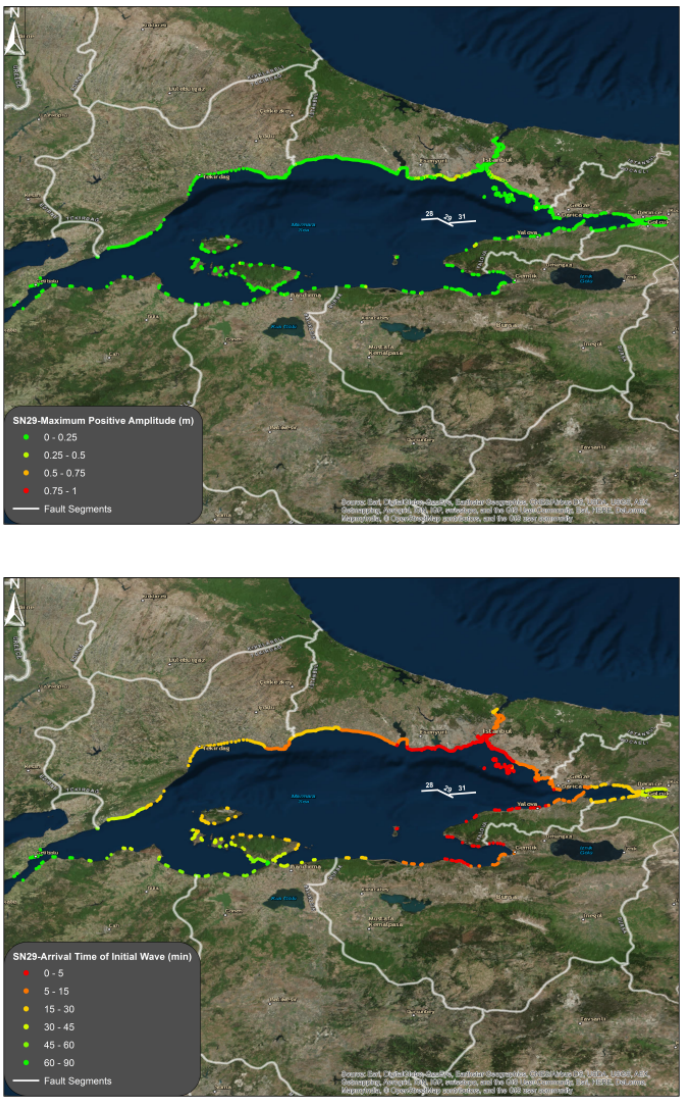

Figure 57: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN29. Maximum wave amplitudes reach up to 1m at Bakirkoy and Kadikoy coasts while maximum 50cm wave amplitudes are calculated at western Yalova coasts. The first waves arrive to B. Cekmece, Bakirkoy, Kadikoy, Maltepe, Bostanci, Kartal, Halic, southern entrance of Bosphorus, Prince Islands, Yalova coasts, some locations at Tuzla and Darica, and Gemlik Bay within 5 minutes.

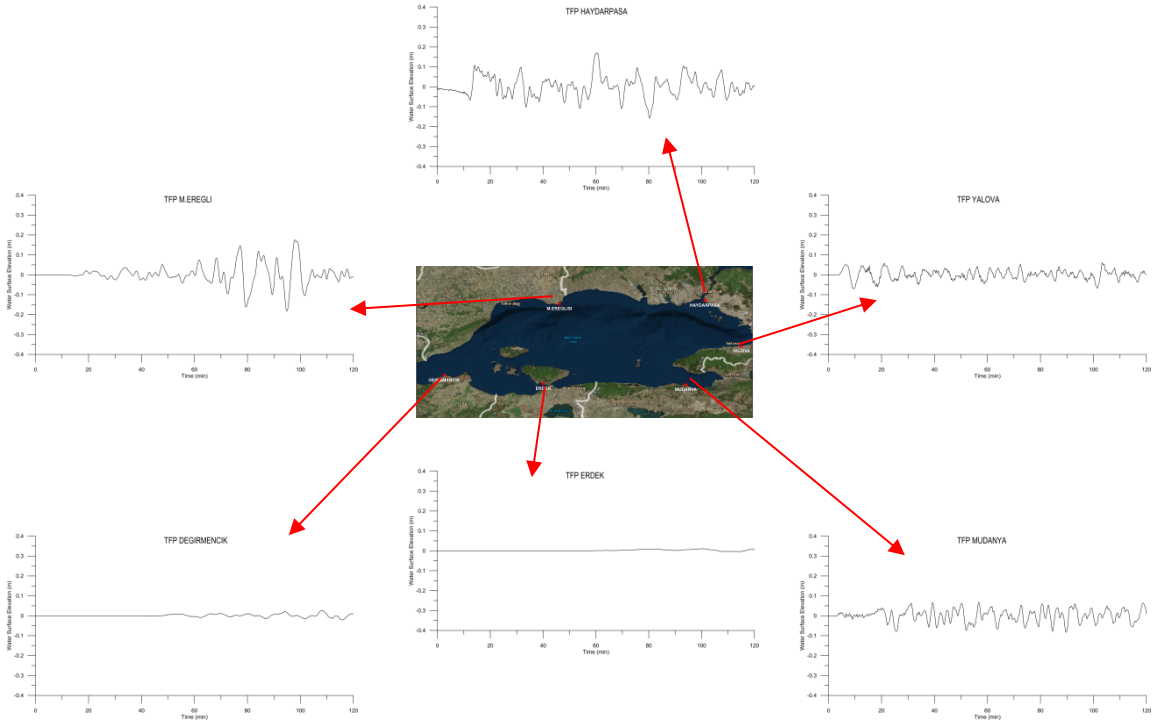

Figure 58: Water level fluctuations calculated for scenario SN29 at Tsunami Forecast Points in Marmara Sea. The maximum positive water levels calculated at all TFPs do not exceed 20cm. The highest fluctuations are calculated at M. Eregli and Haydarpasa.

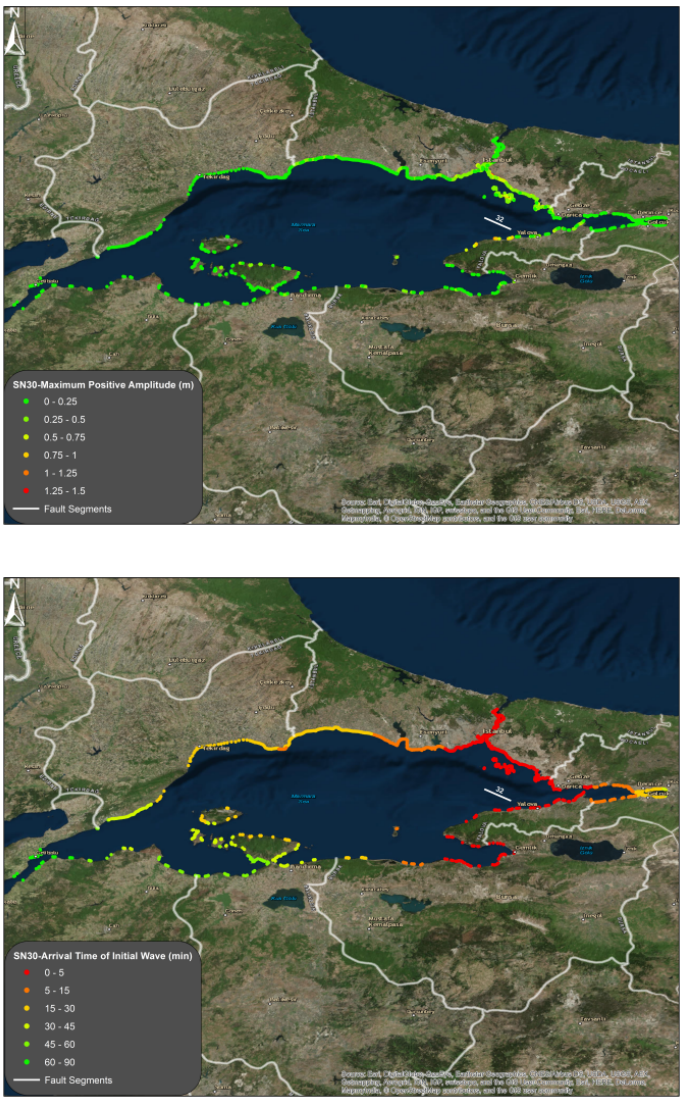

Figure 59: Distribution of maximum wave amplitudes and arrival time of first wave along the coasts of Marmara Sea regarding to scenario SN30. The most significant tsunami effects for this scenario are observed along Yalova coasts together with southern coasts of Prince Islands. Wave amplitudes at Cinarcik coasts reach up to 1.5m while around 1.2m wave amplitudes are calculated at western Yalova coasts and southern coasts of Princes Islands. Besides, water levels around 1m are estimated for some locations at Bostanci. The first waves arrive to Bakirkoy, Yenikapi, Bosphorus, Kadikoy, Maltepe, Kartal, Pendik, Tuzla, Darica, Gebze, the entrance of Izmit Bay, Prince Islands, Yalova coasts and Gemlik Bay within 5 minutes. Inner regions of Izmit Bay, B. Cekmece. Mudanya and M. Eregli would observe tsunami waves within 15 minutes after the event.

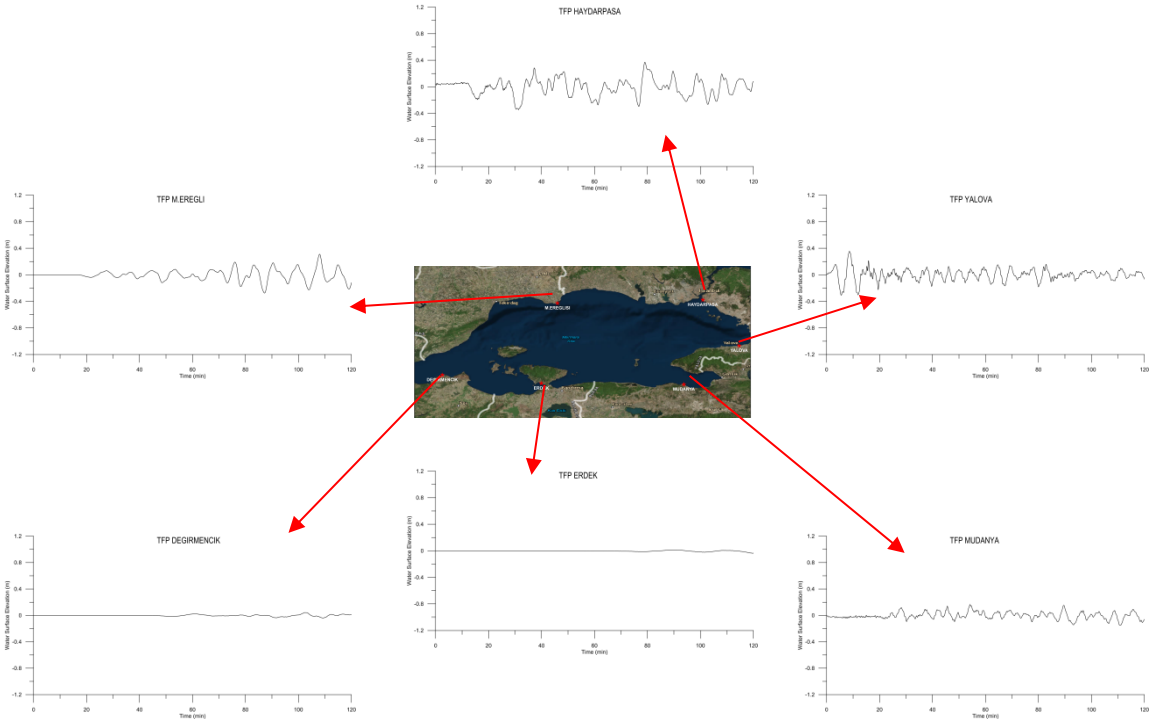

Figure 60: Water level fluctuations calculated for scenario SN30 at Tsunami Forecast Points in Marmara Sea. The highest water levels are calculated at Haydarpasa, Yalova and M. Eregli as about 40cm. The tsunami effect at other TFPs is negligible.

2. WATER LEVEL FLUCTUTATIONS CALCULATED AT ADDITIONAL GAUGE POINTS IN CRITICAL FACILITIES OF MARMARA SEA FOR EACH EARTHQUAKE SCENARIO

In addition to Tsunami Forecast Points along Marmara coasts, 20 additional gauge points were selected out of 1333 considering the locations of industrial facilities, harbors, marinas, refineries and shipyards. These locations are: Ambarli Harbor, Botas, Pendik Port, Tuzla Shipyard, Tupras, Yilport, Derince Harbor, Oil Filling Factory, Ford Factory, Yalova Shipyard, Golcuk Harbor, Chemistry Factory, Gemport, Mudanya Port, Borusan, Bandirma Harbor, Fertilizer Factory, Oil Chemistry Plant, Natural Gas Plant, Icdas Thermal Plant, The water level fluctuations were also plotted at these 20 gauge points for each earthquake scenario. These points are mainly located in Izmit Bay, Gemlik Bay and Bandirma Bay.

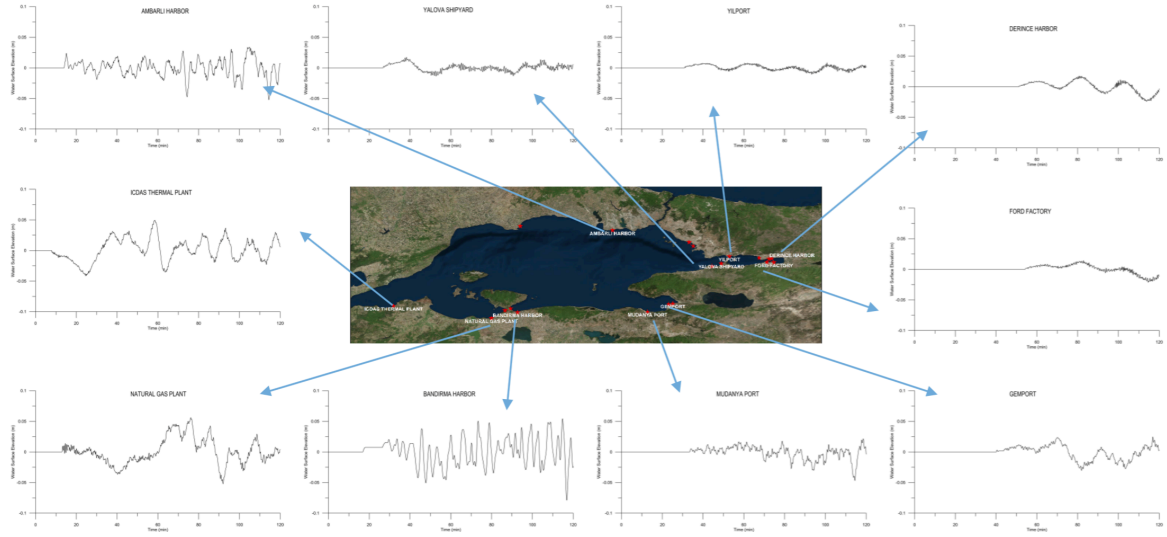

Figure 61: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN01

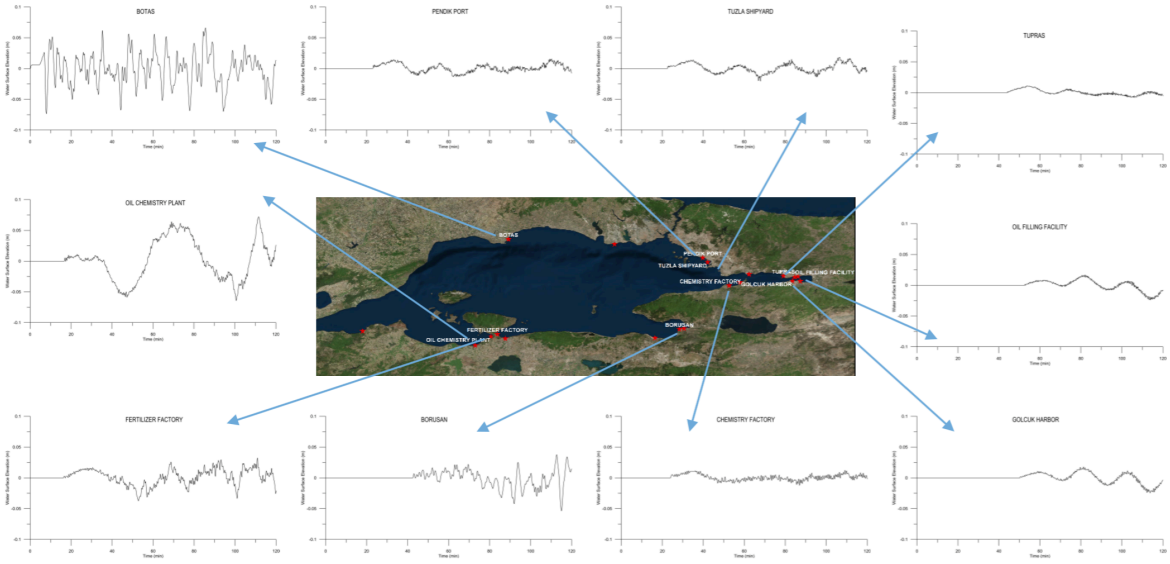

Figure 62: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN01

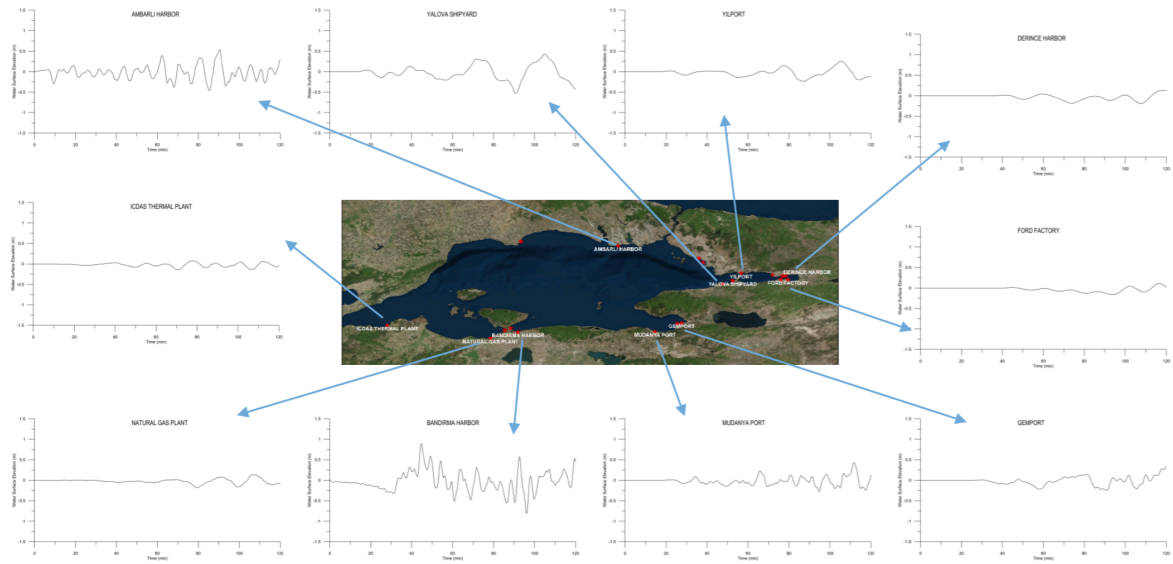

Figure 63: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN02

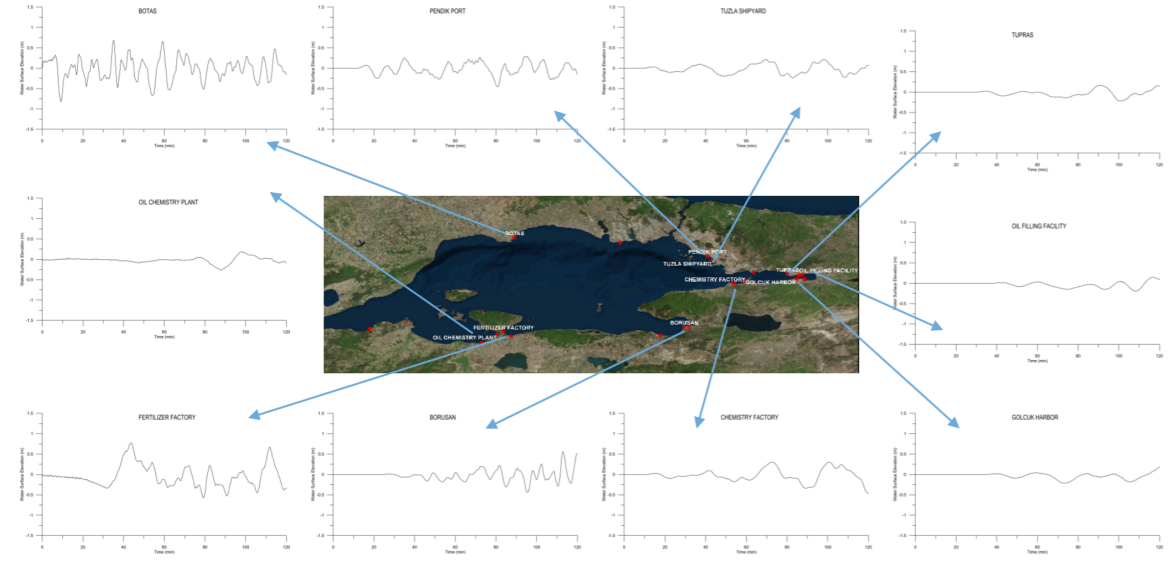

Figure 64: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN02

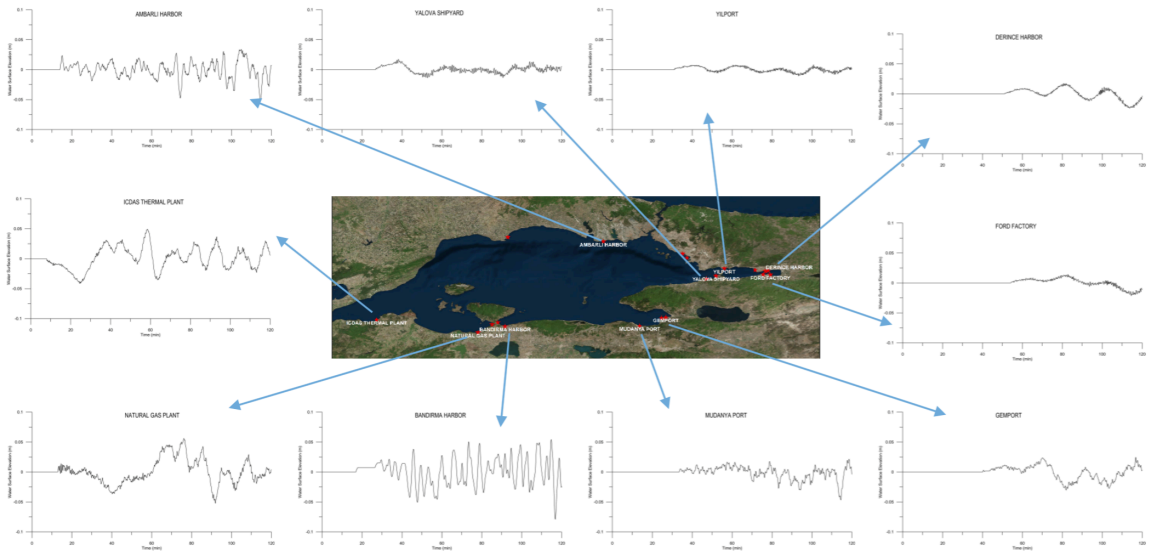

Figure 65: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN03

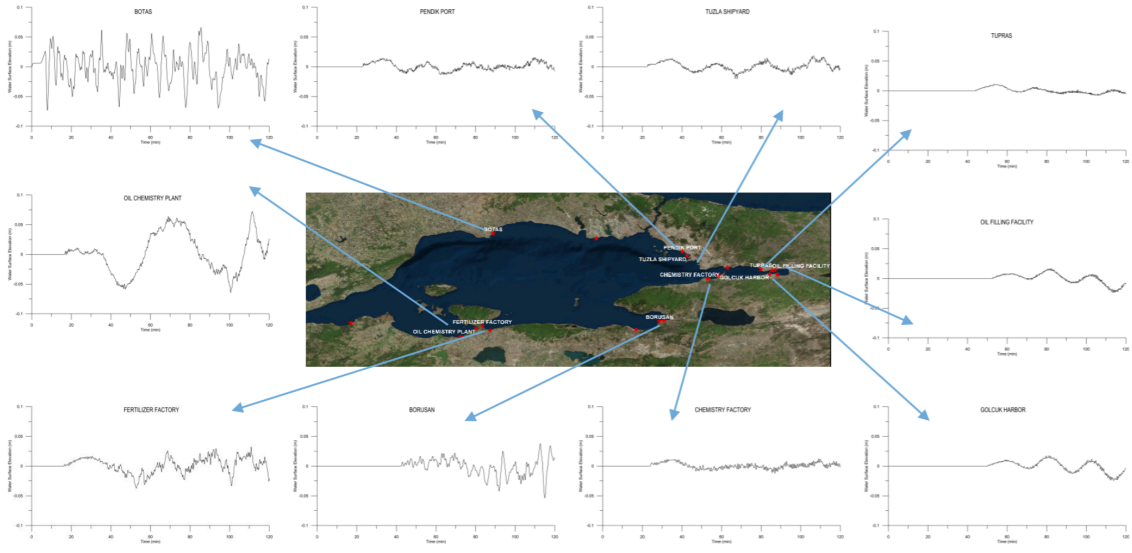

Figure 66: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN03

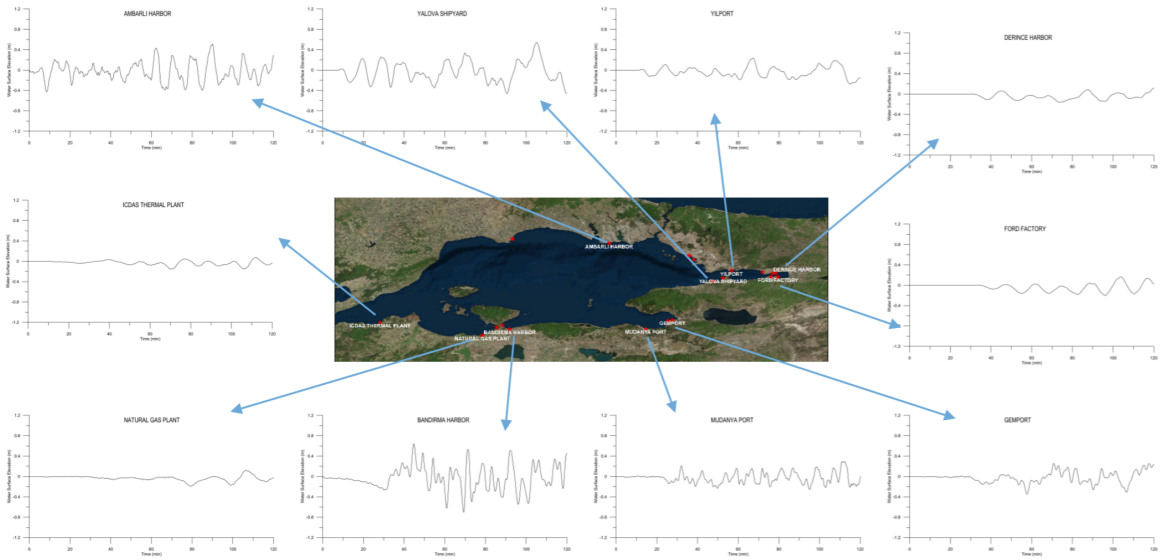

Figure 67: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN04

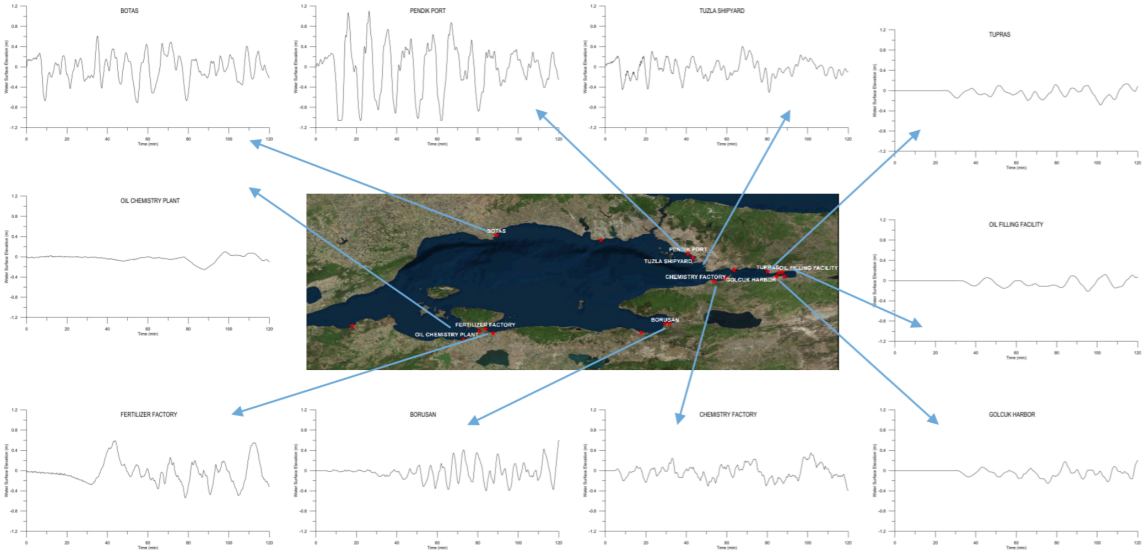

Figure 68: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN04

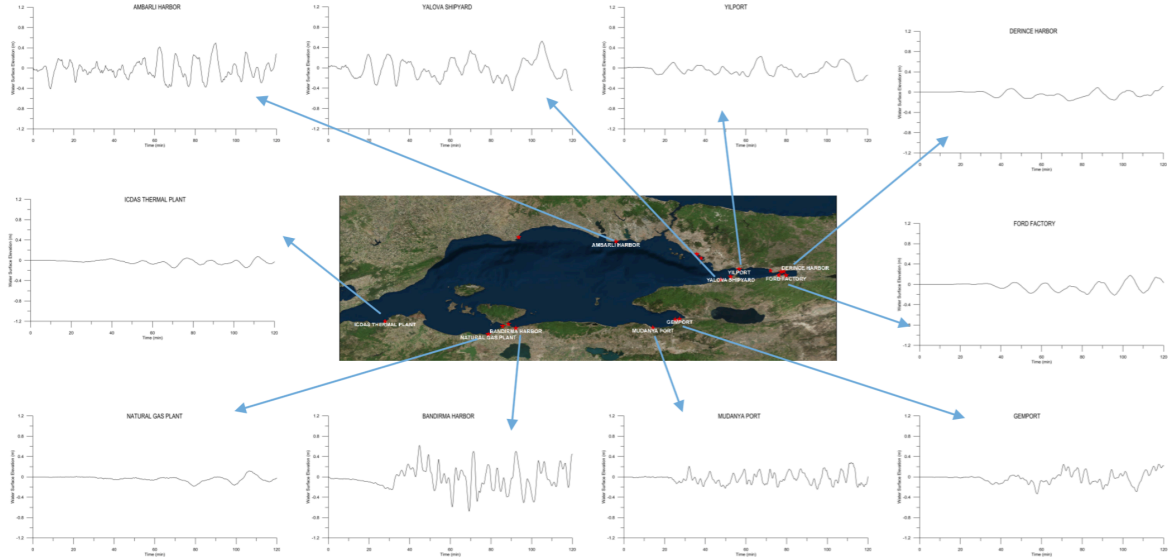

Figure 69: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN05

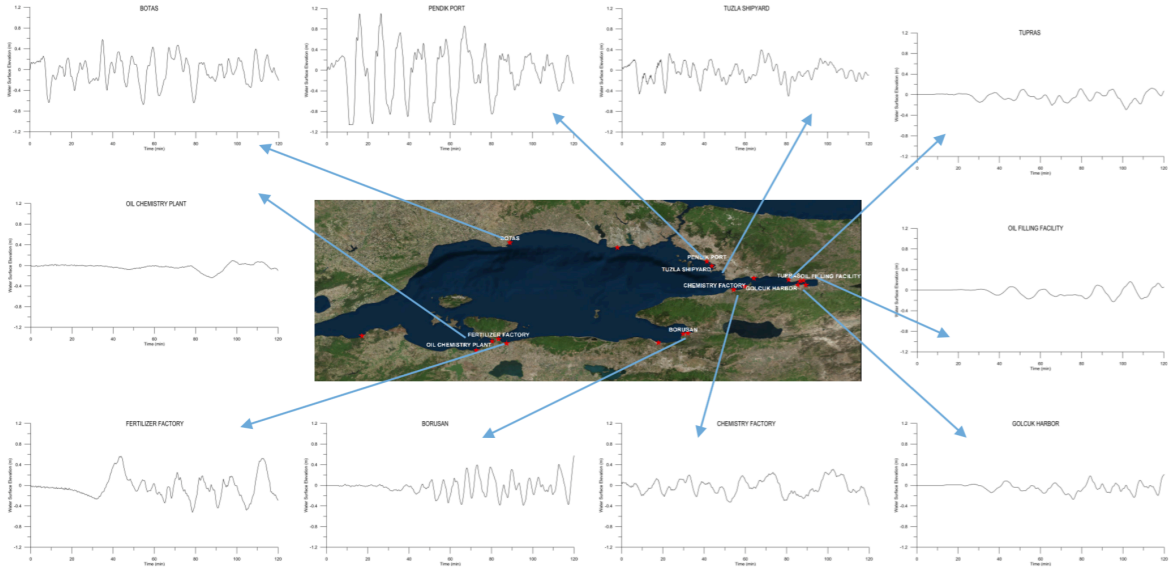

Figure 70: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN05

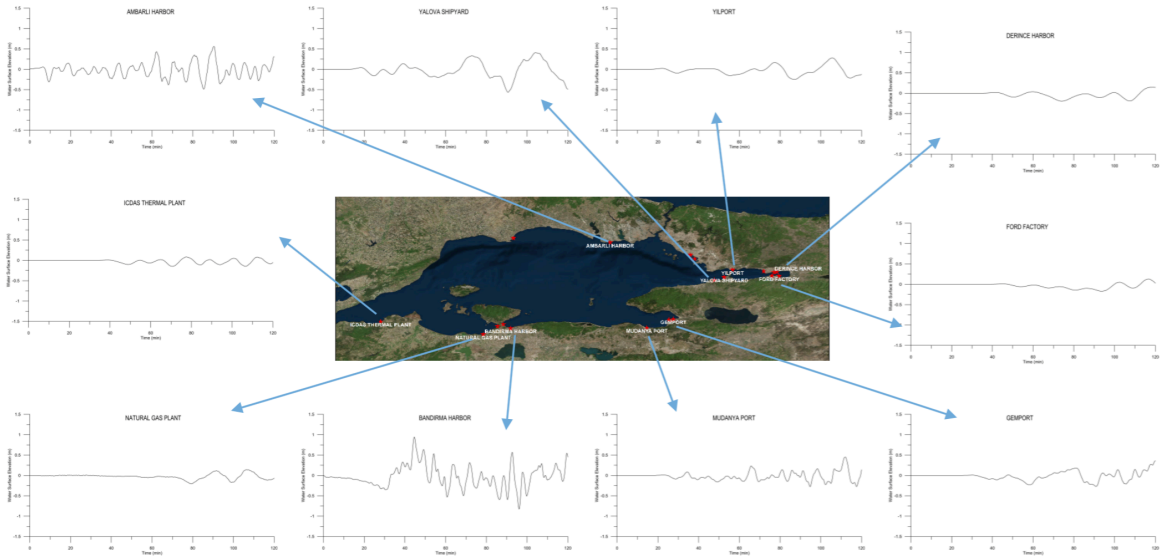

Figure 71: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN06

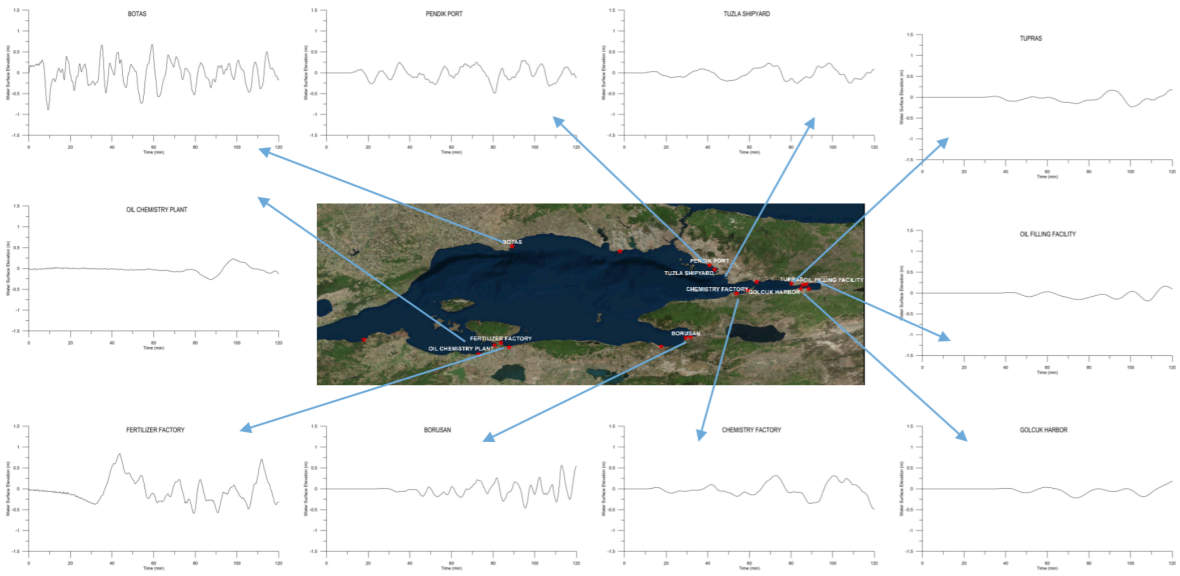

Figure 72: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN06

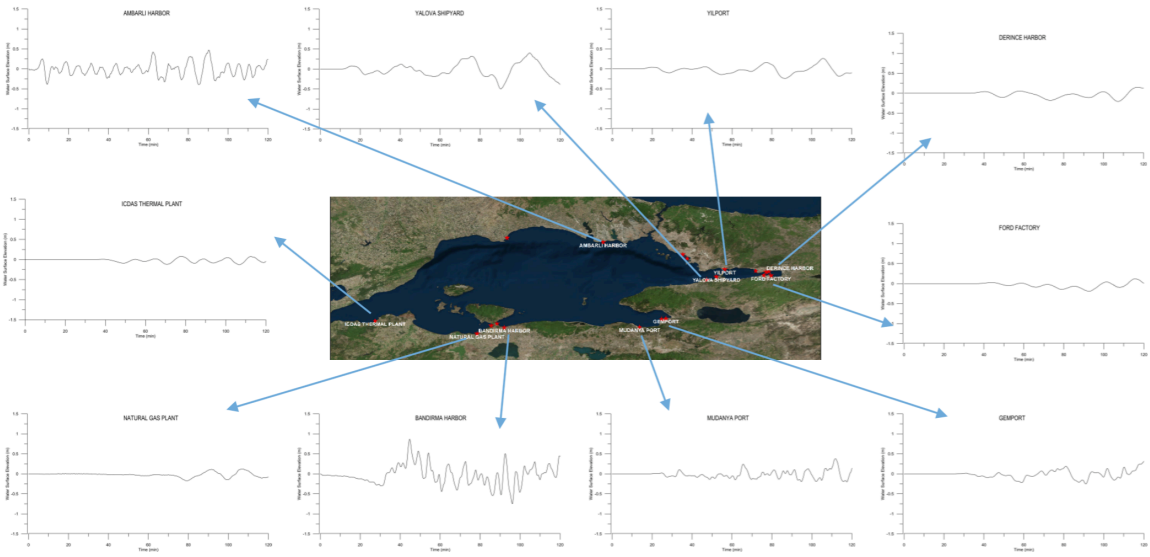

Figure 73: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN07

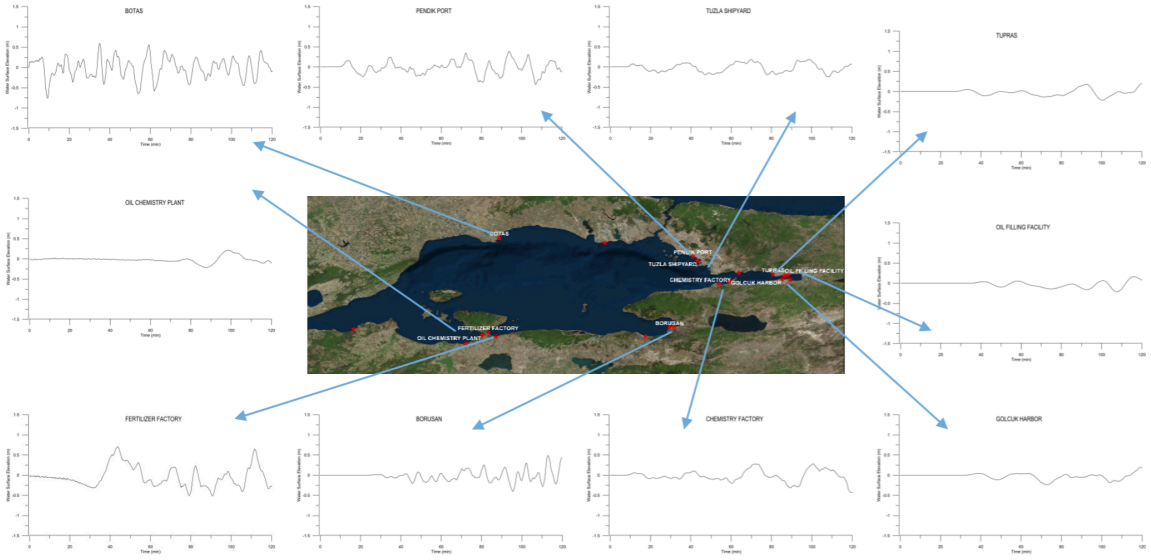

Figure 74: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN07

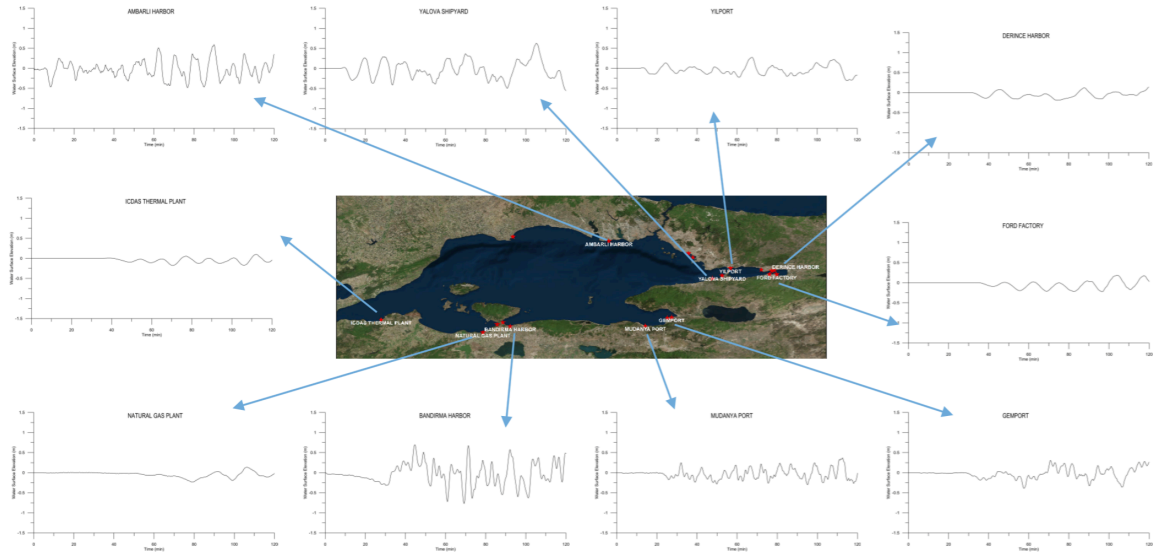

Figure 75: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN08

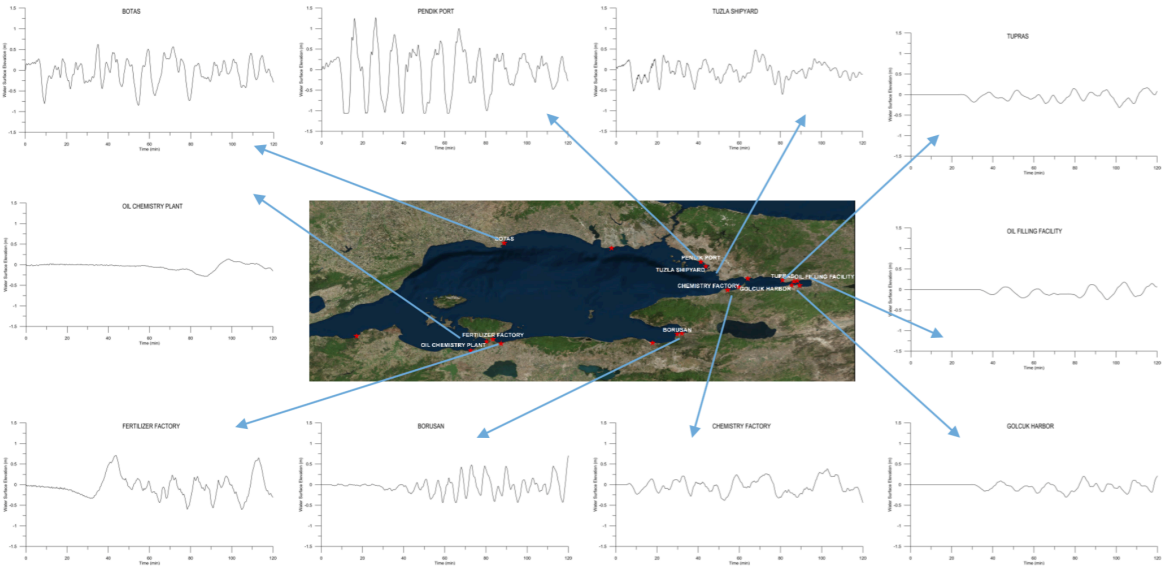

Figure 76: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN08

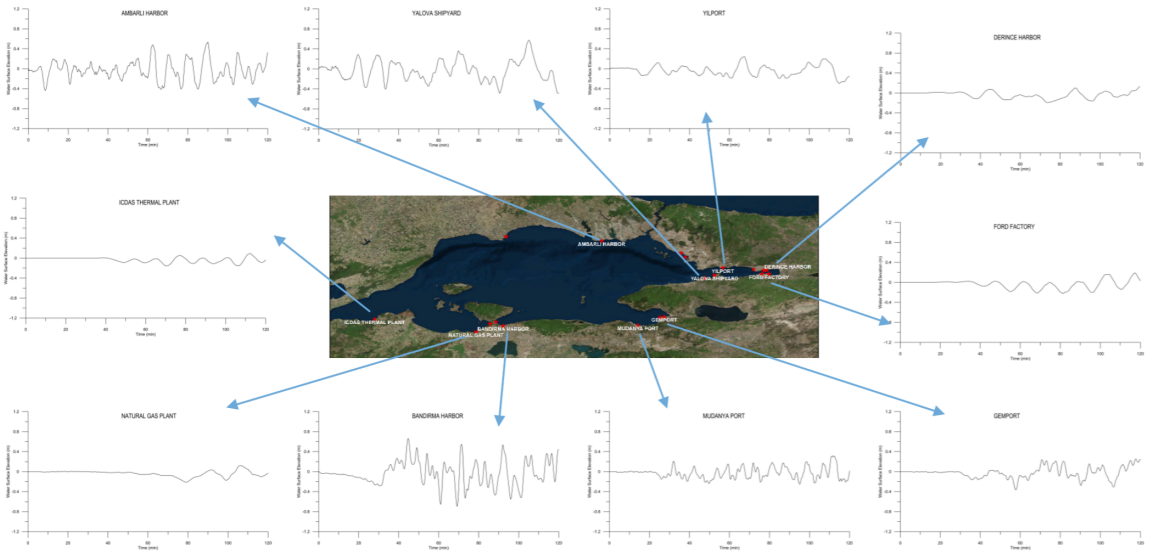

Figure 77: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN09

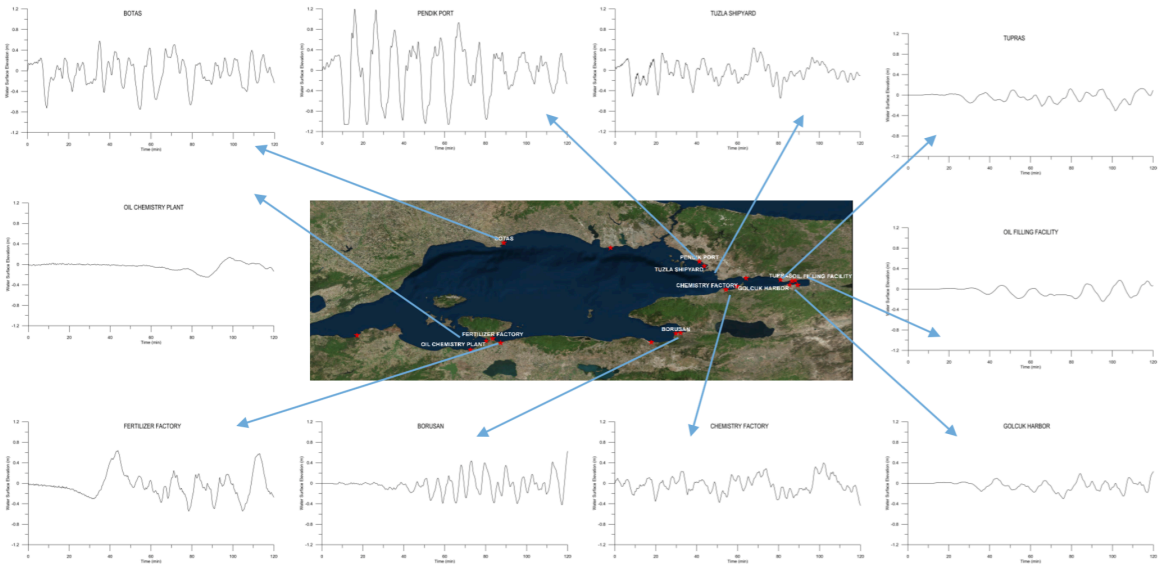

Figure 78: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN09

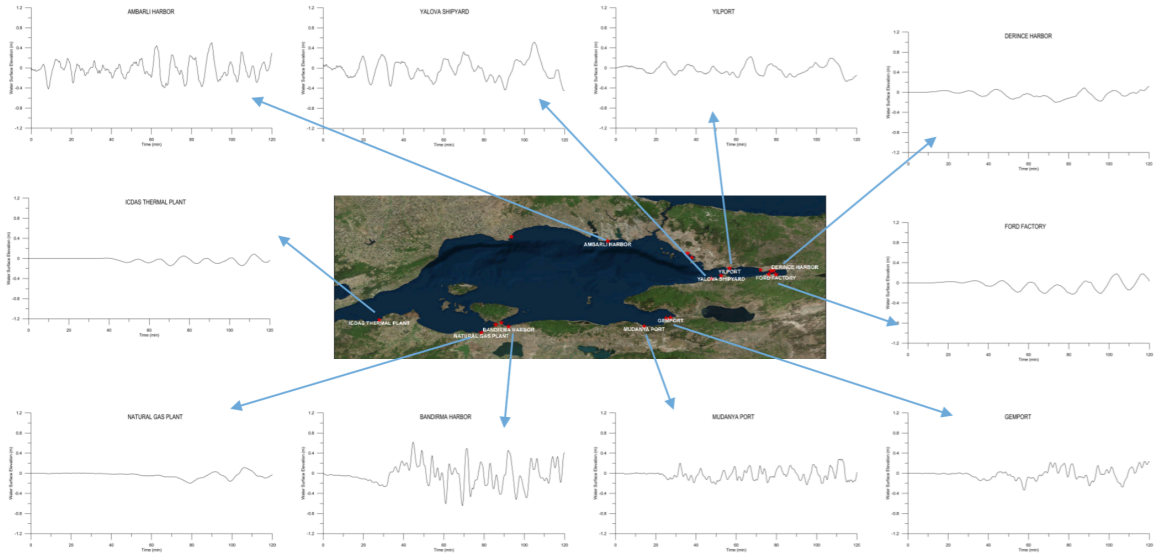

Figure 79: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN10

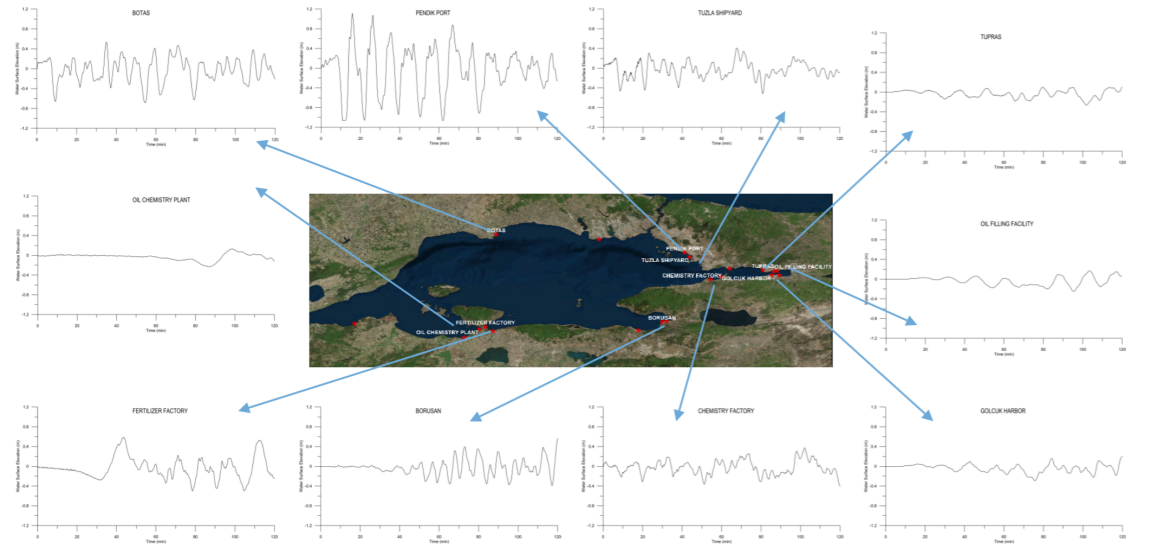

Figure 80: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN10

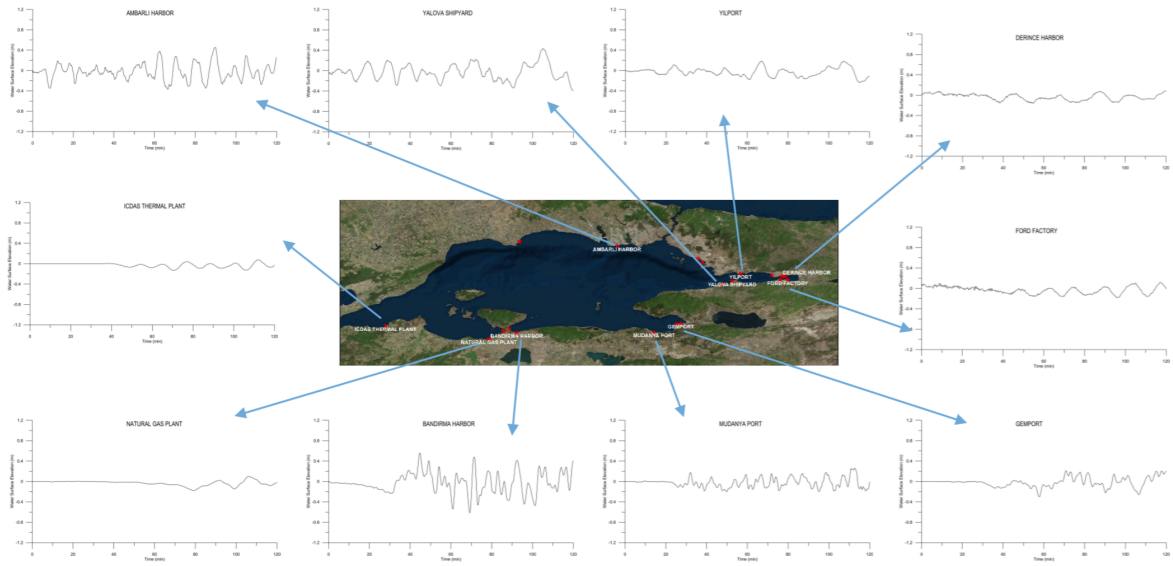

Figure 81: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN11

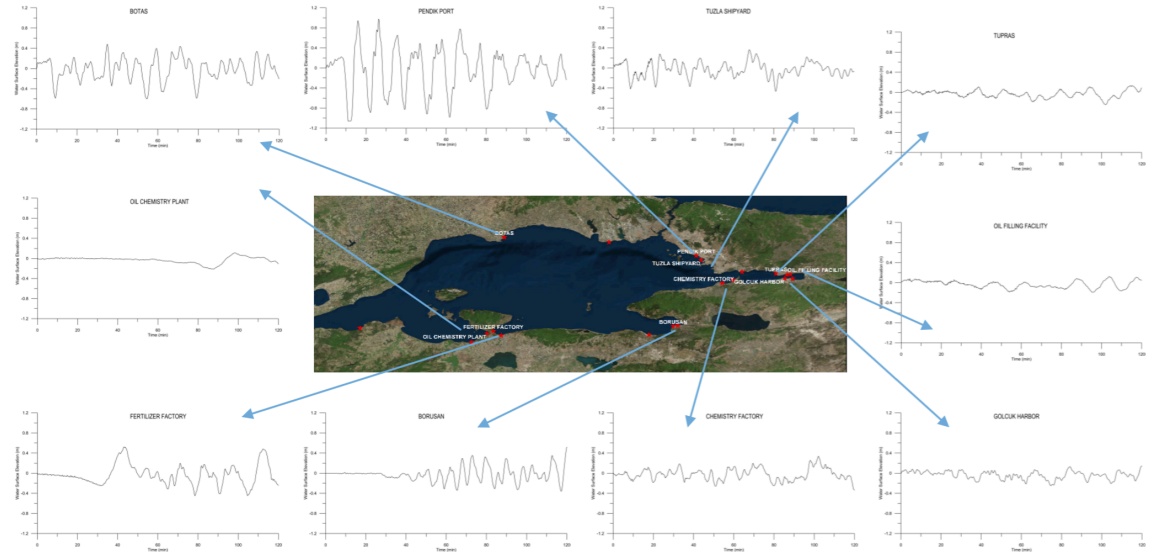

Figure 82: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN11

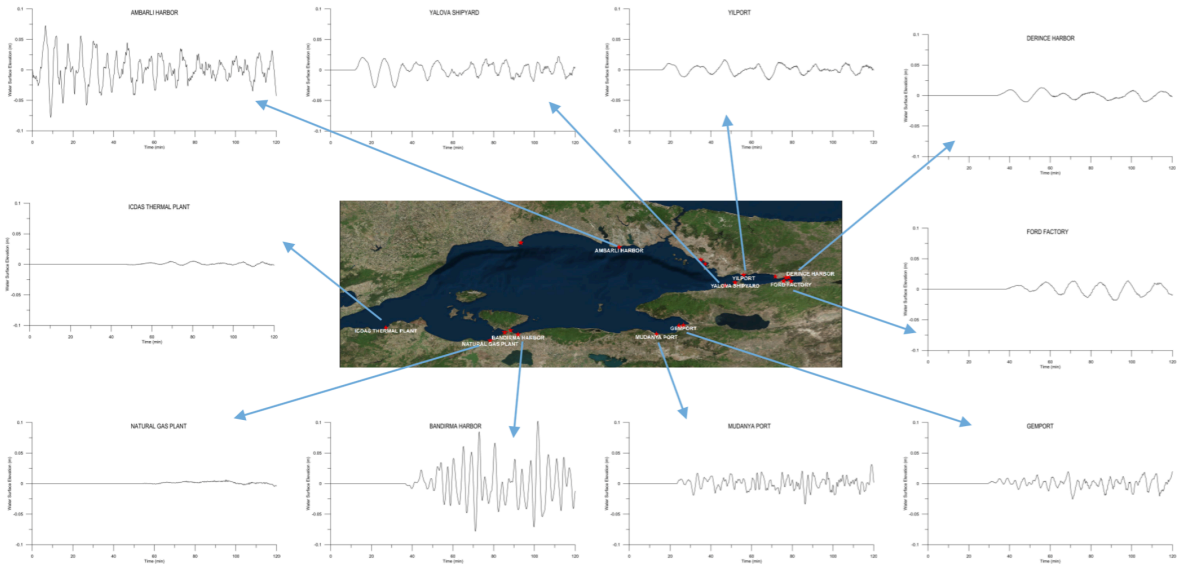

Figure 83: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN12

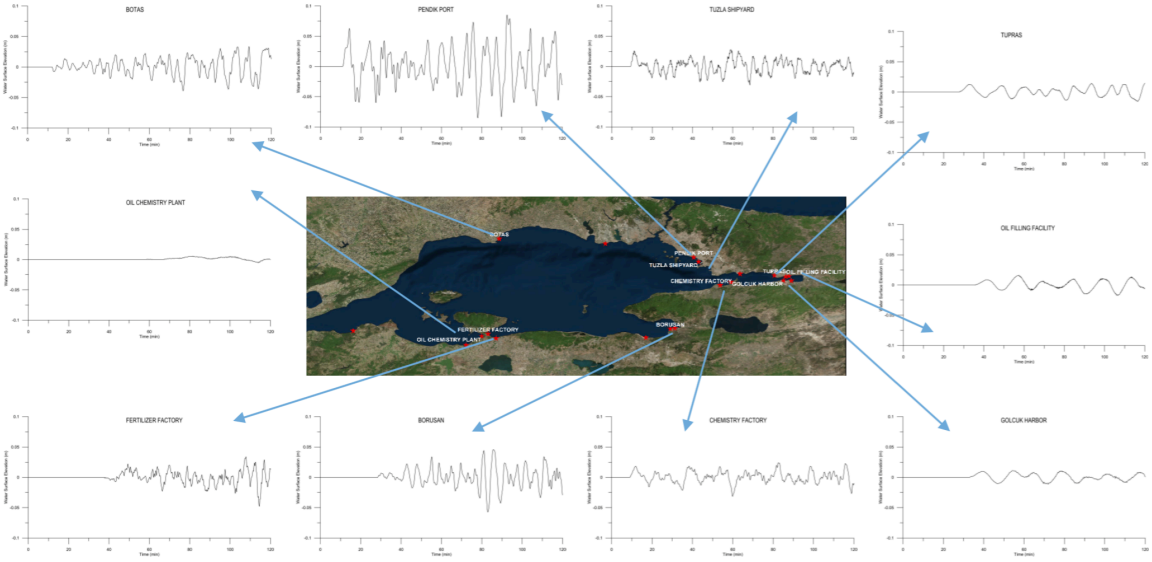

Figure 84: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN12

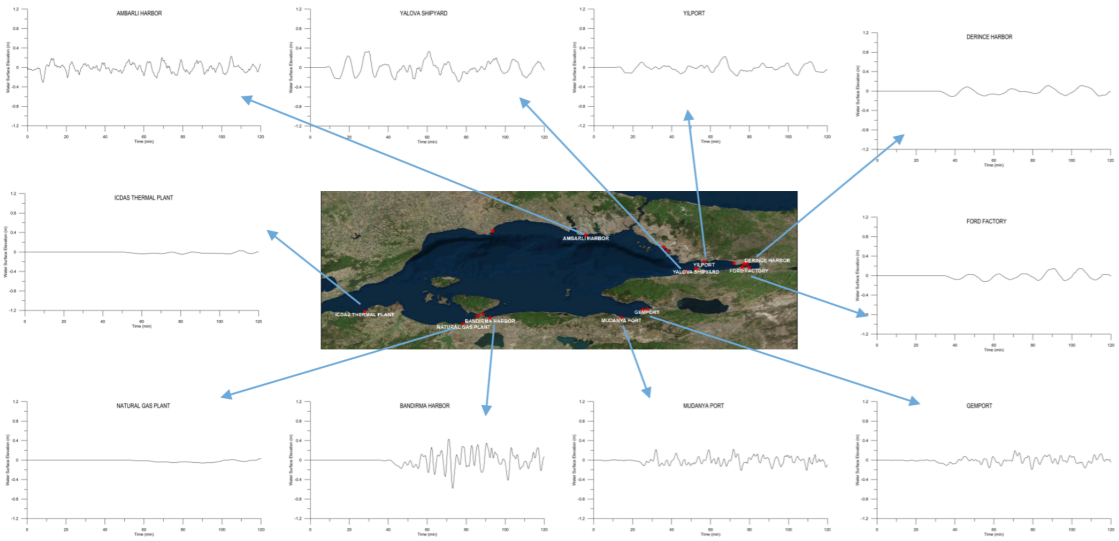

Figure 85: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN13

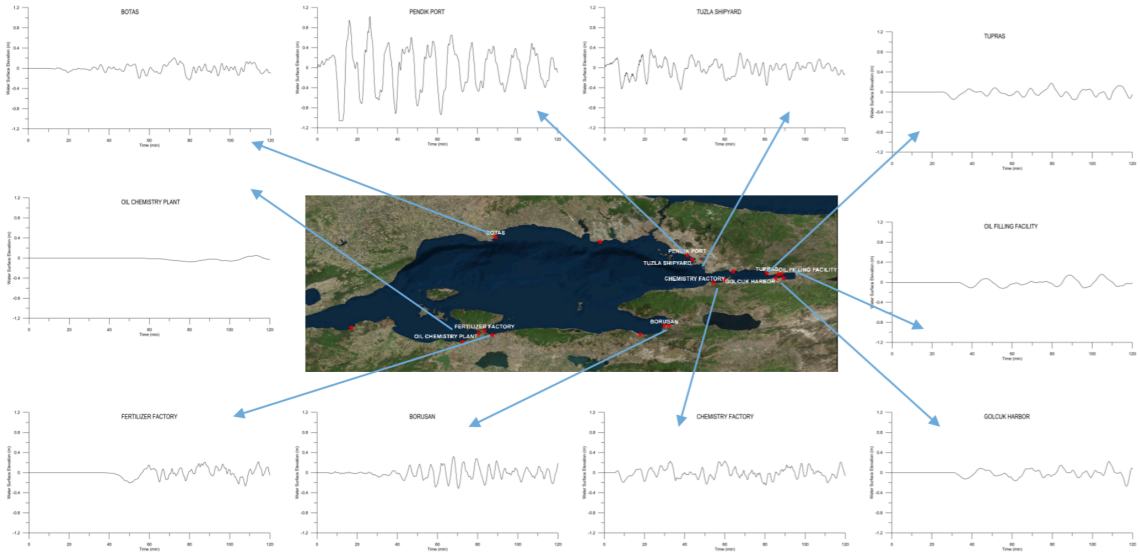

Figure 86: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN13

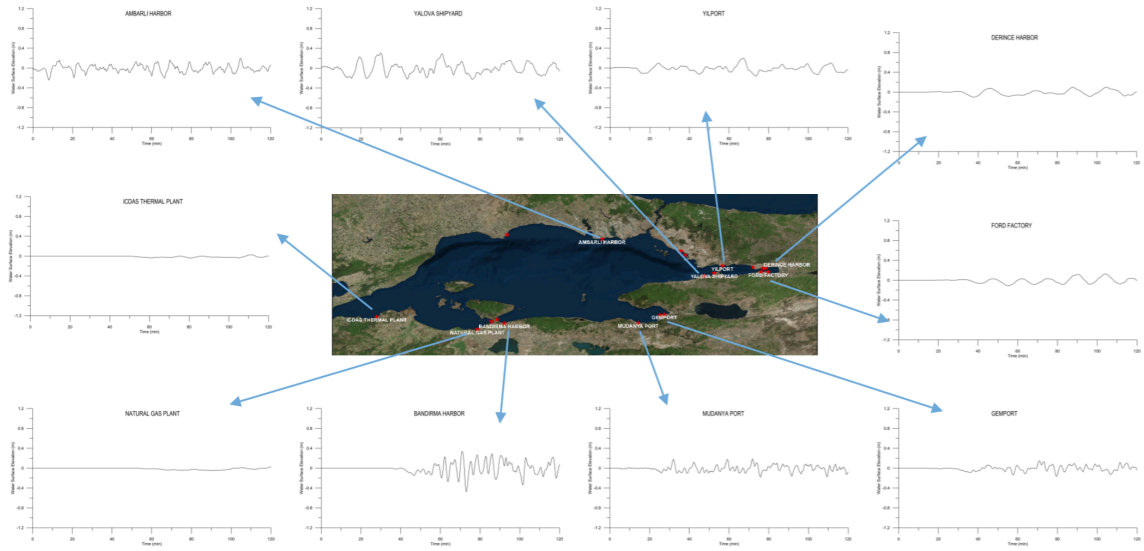

Figure 87: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN14

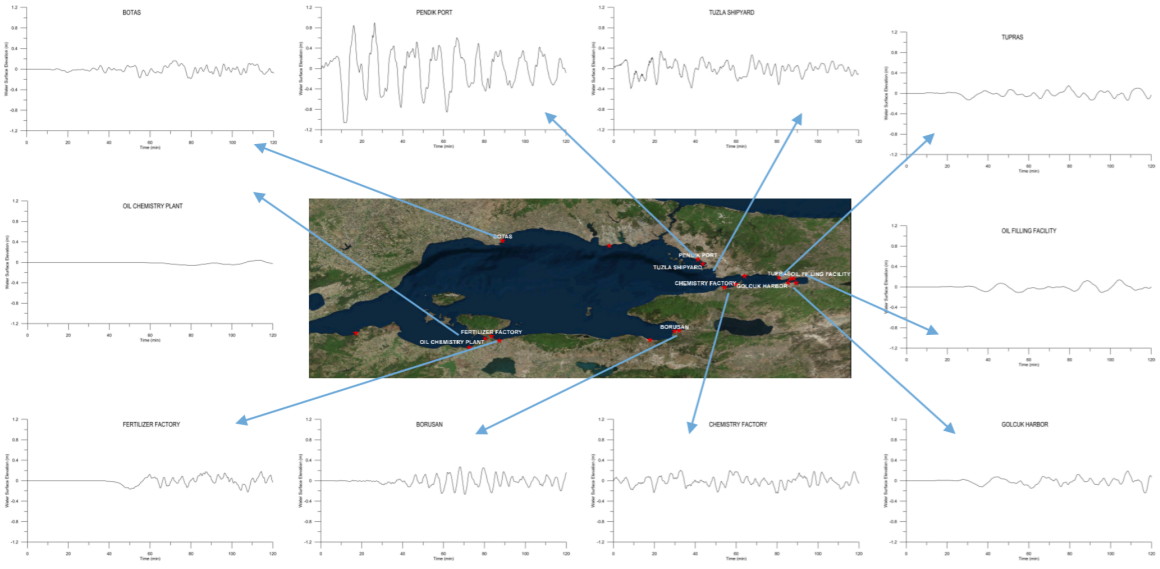

Figure 88: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN14

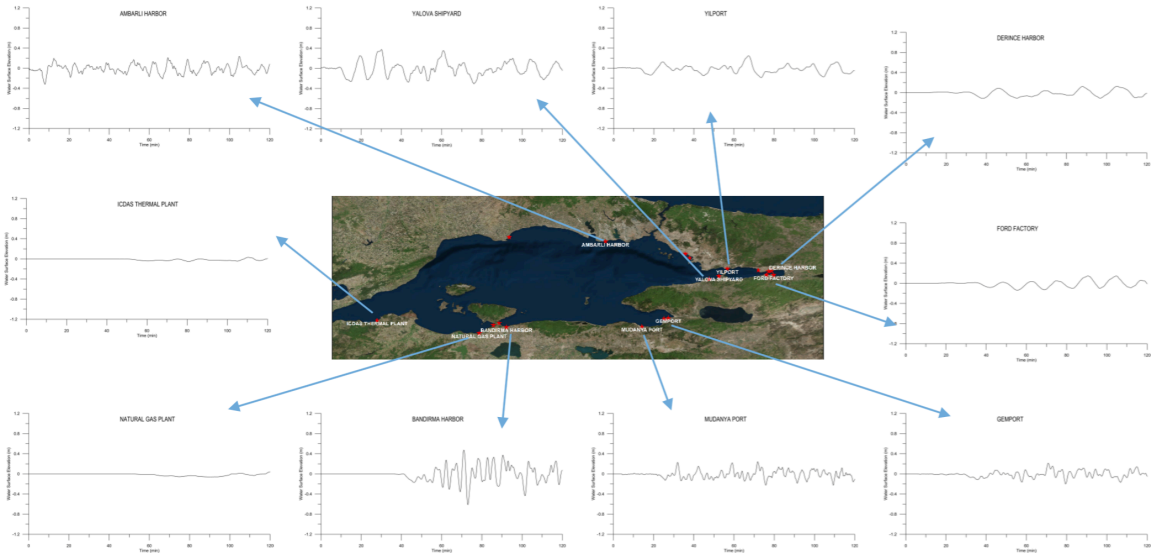

Figure 89: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN15

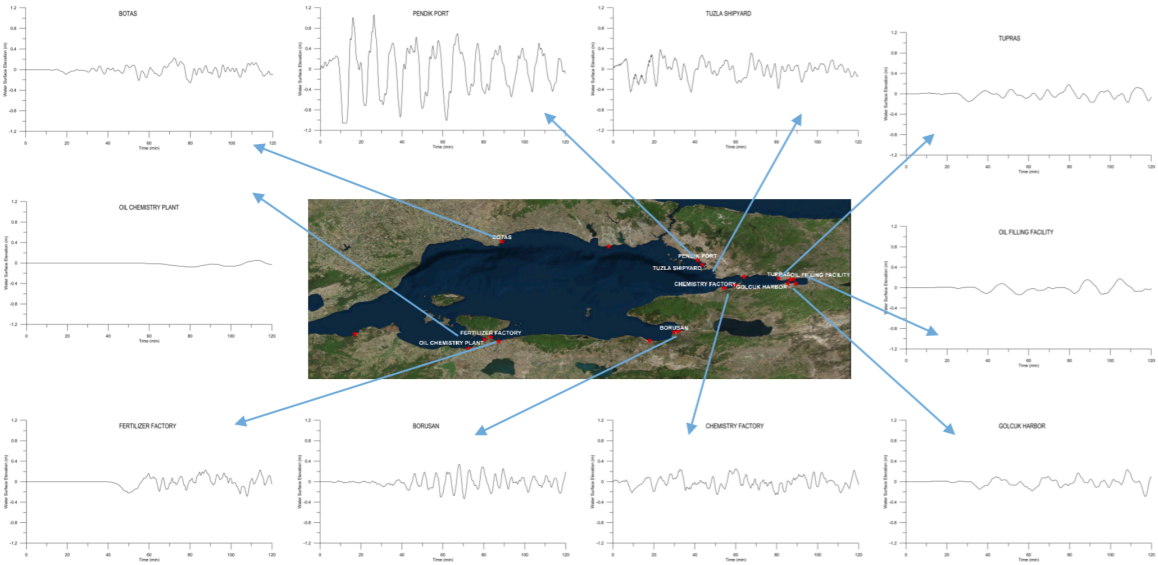

Figure 90: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN15

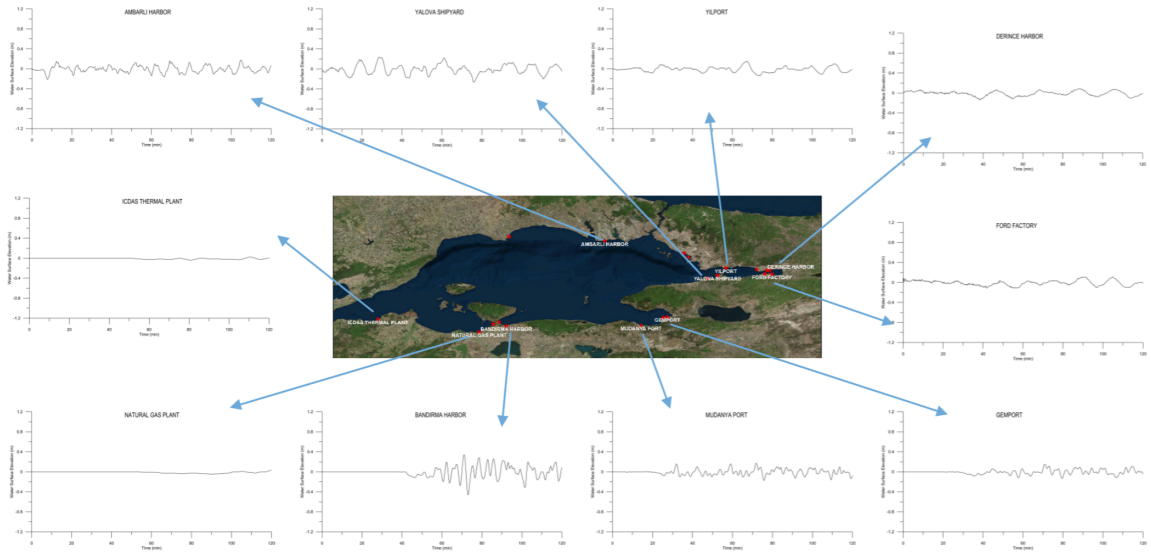

Figure 91: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN16

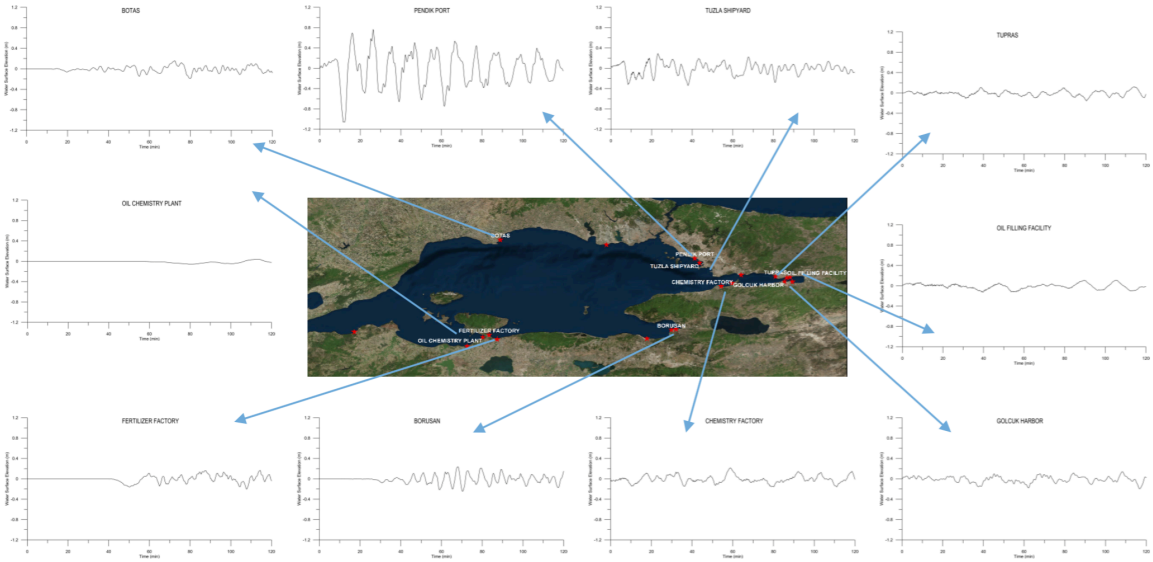

Figure 92: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN16

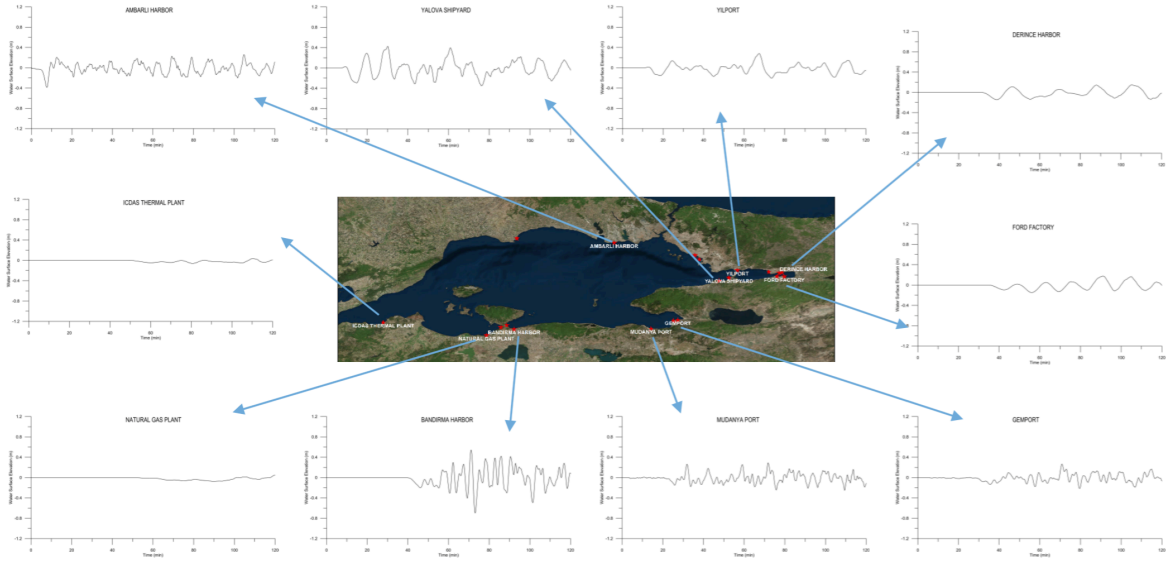

Figure 93: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN17

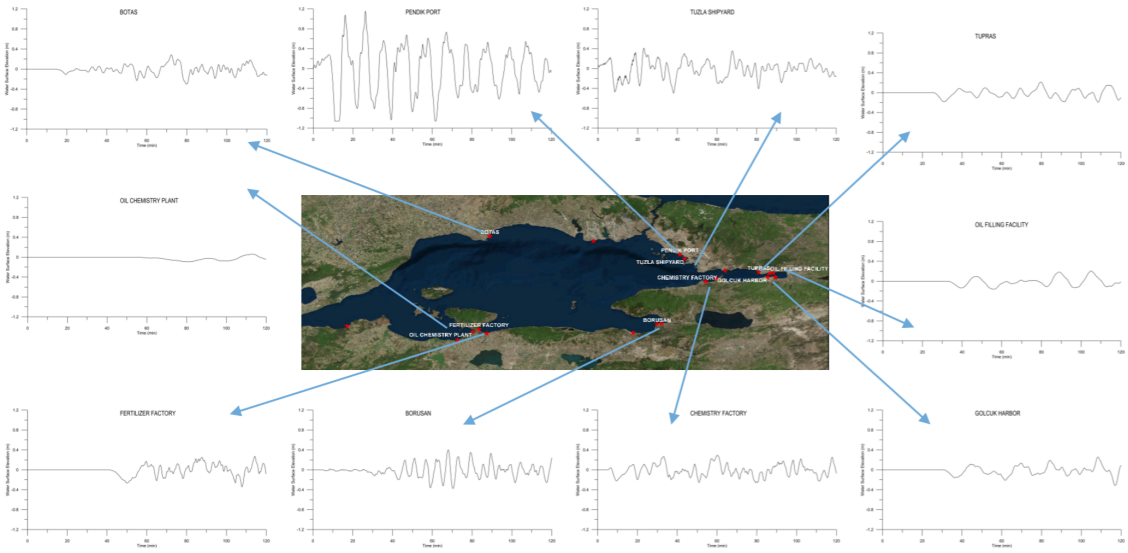

Figure 94: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN17

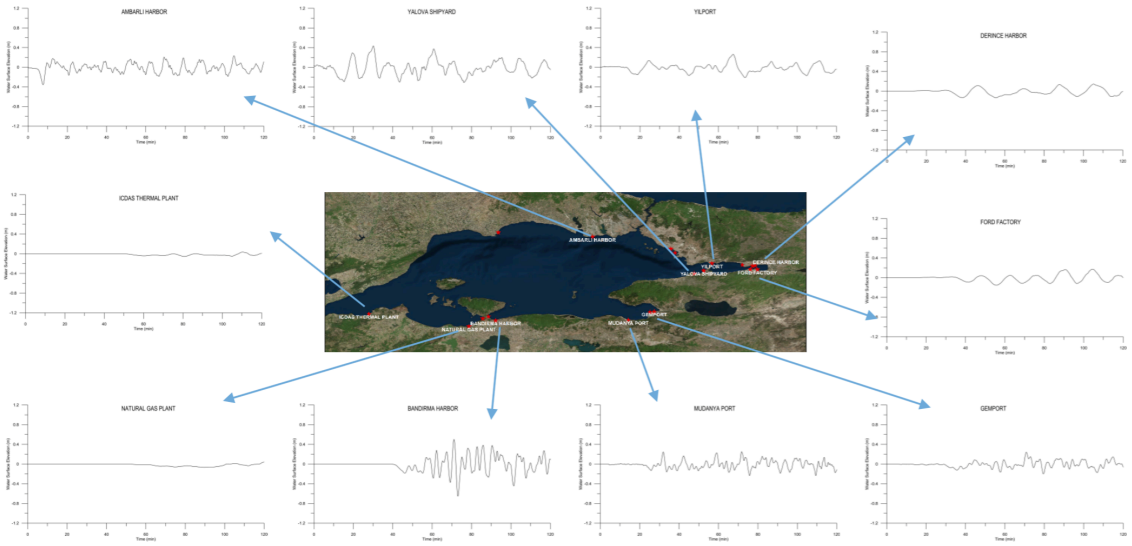

Figure 95: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN18

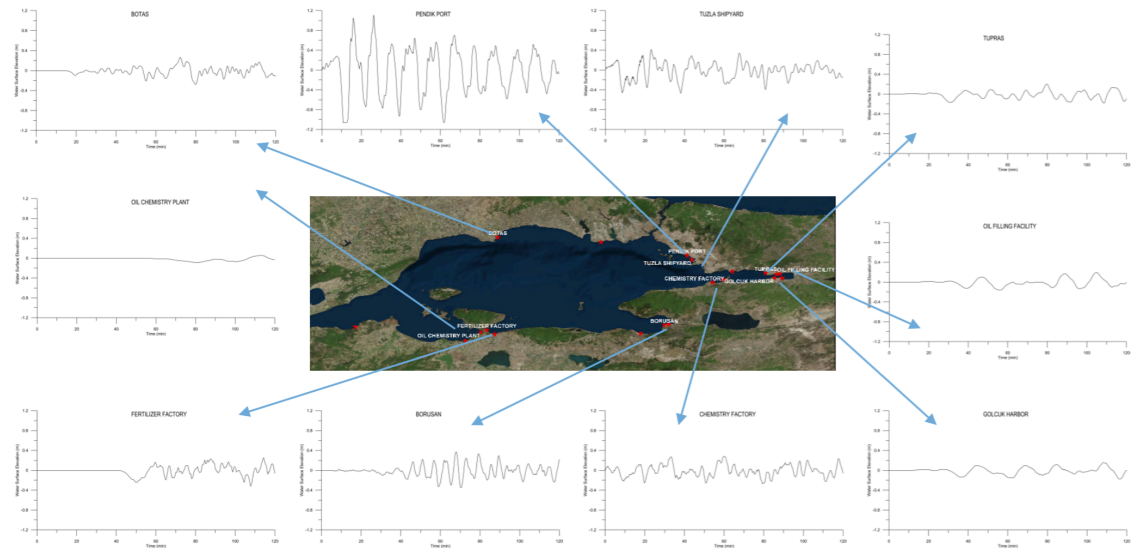

Figure 96: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN18

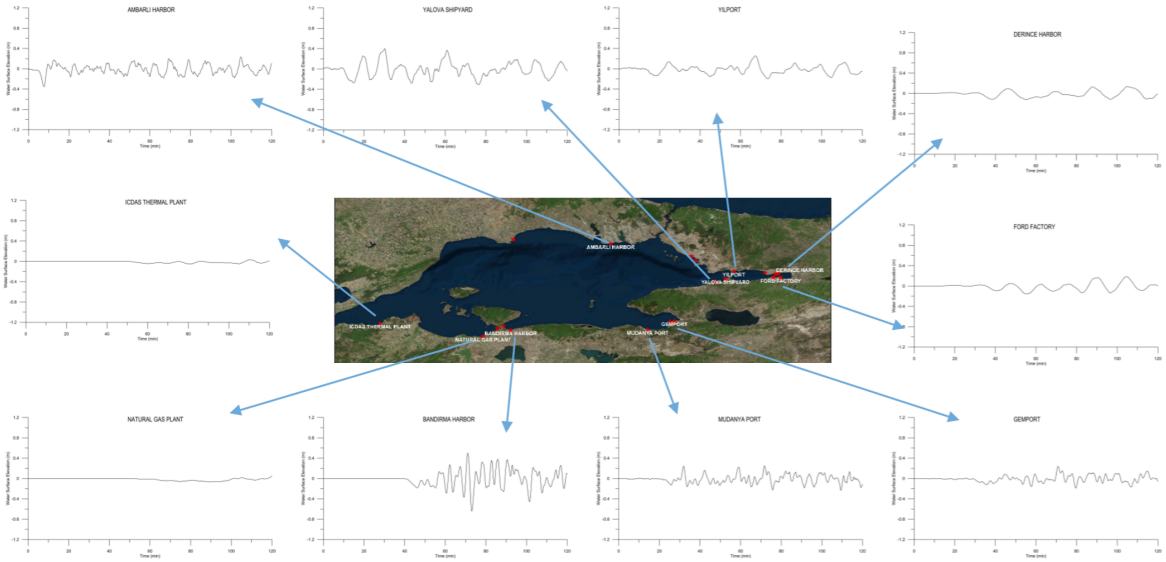

Figure 97: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN19

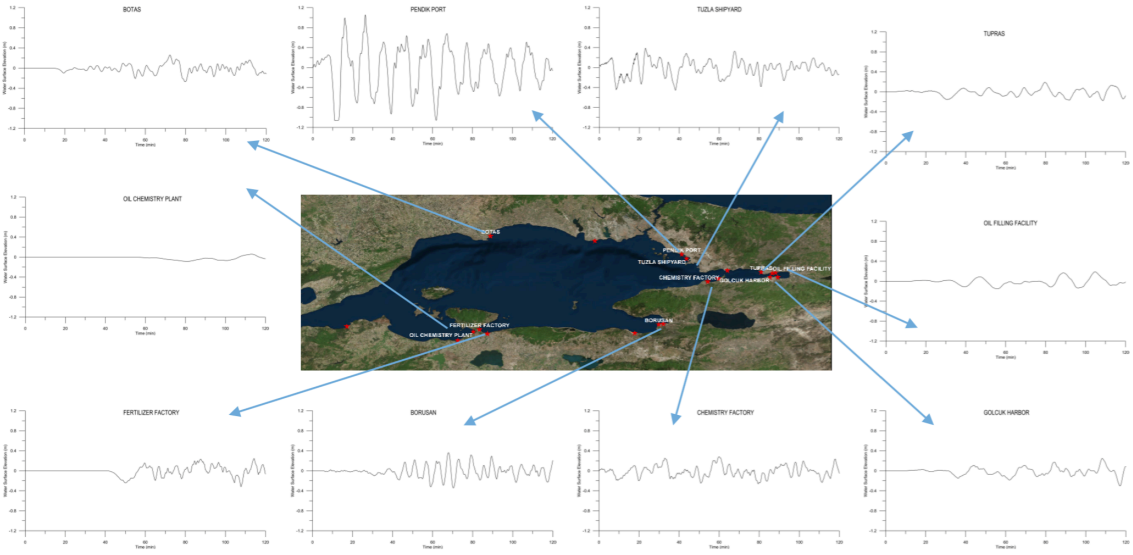

Figure 98: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN19

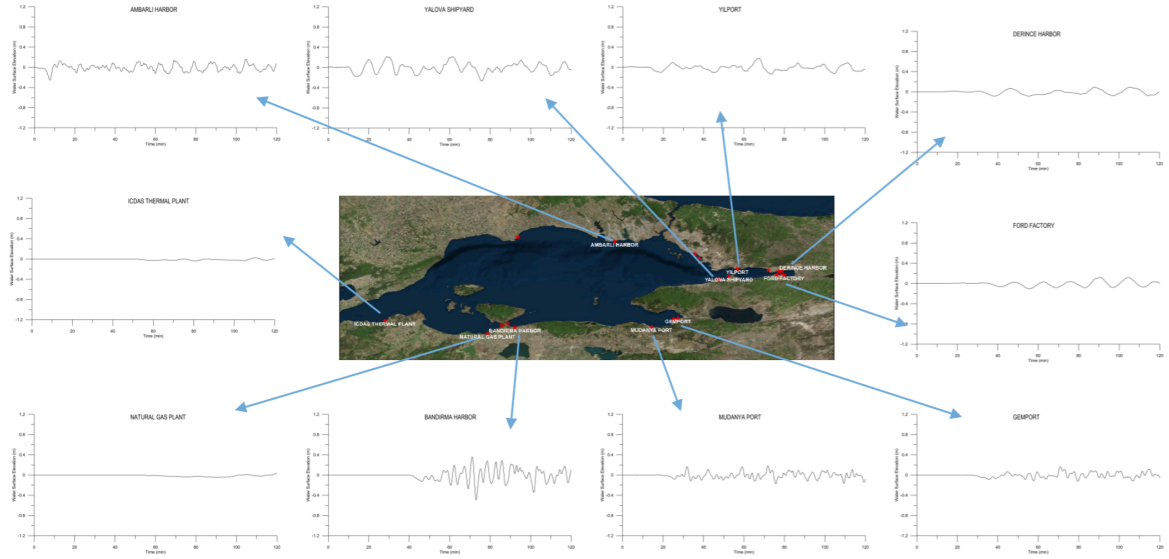

Figure 99: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN20

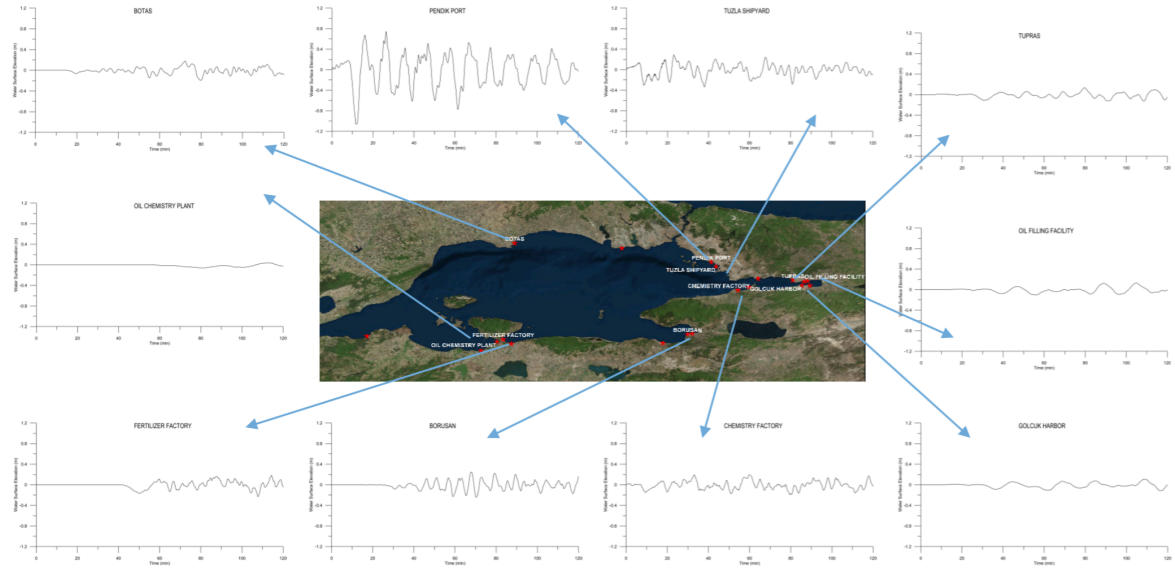

Figure 100: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN20

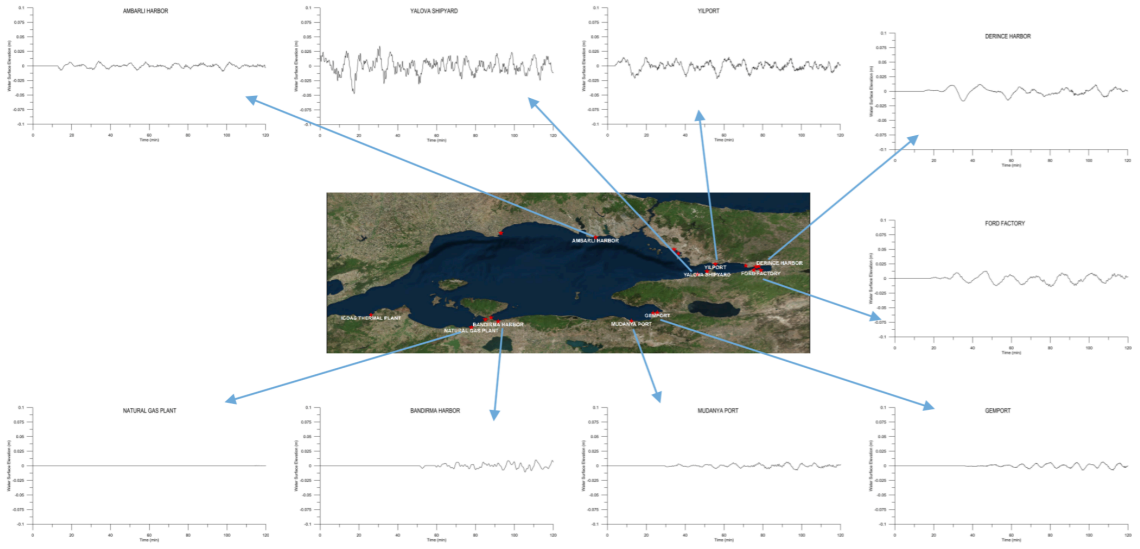

Figure 101: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN21

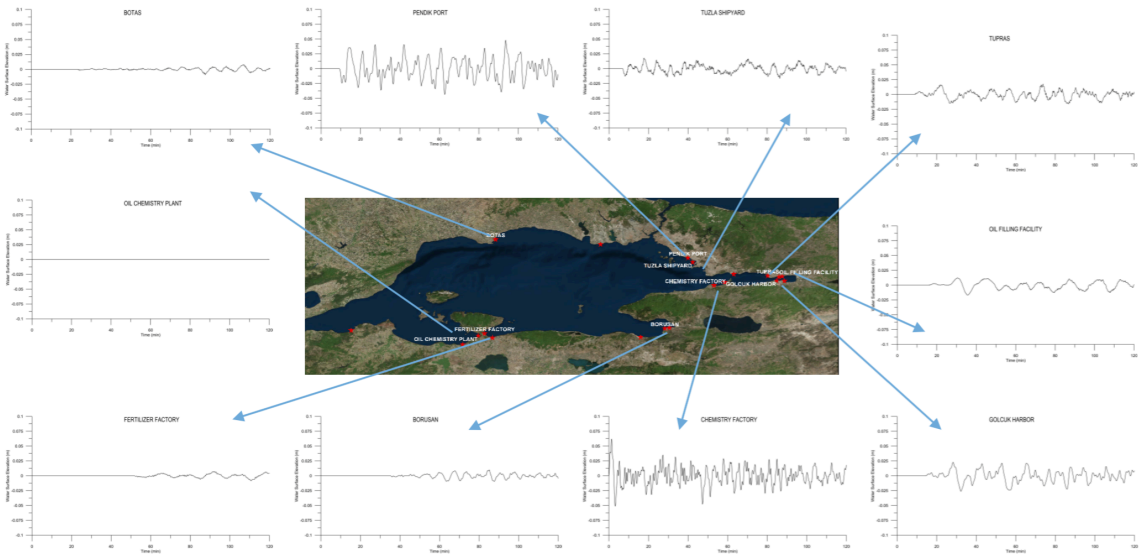

Figure 102: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN21

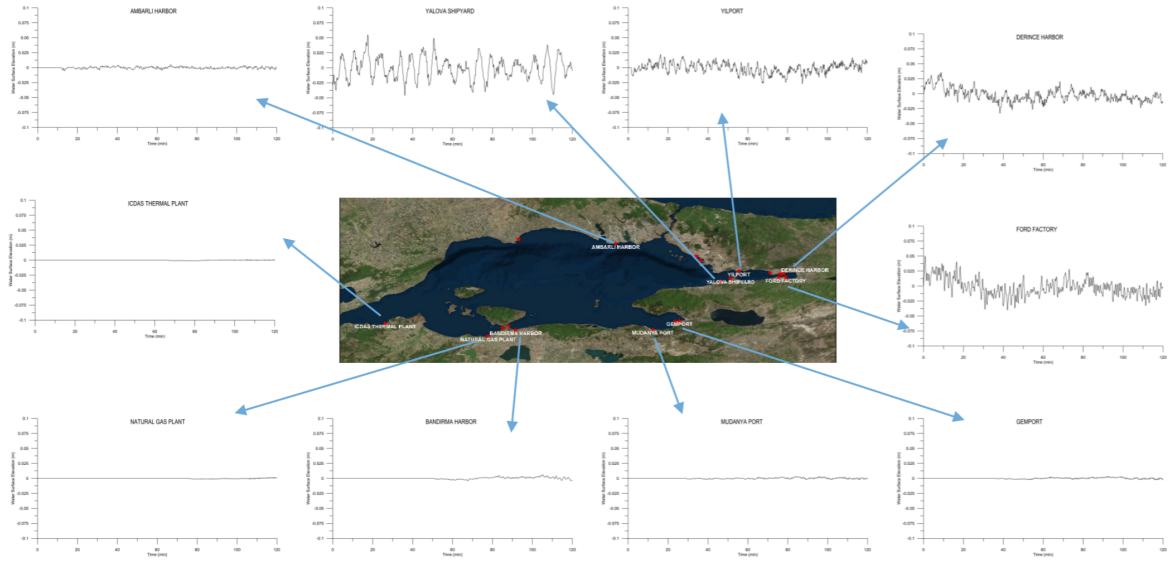

Figure 103: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN22

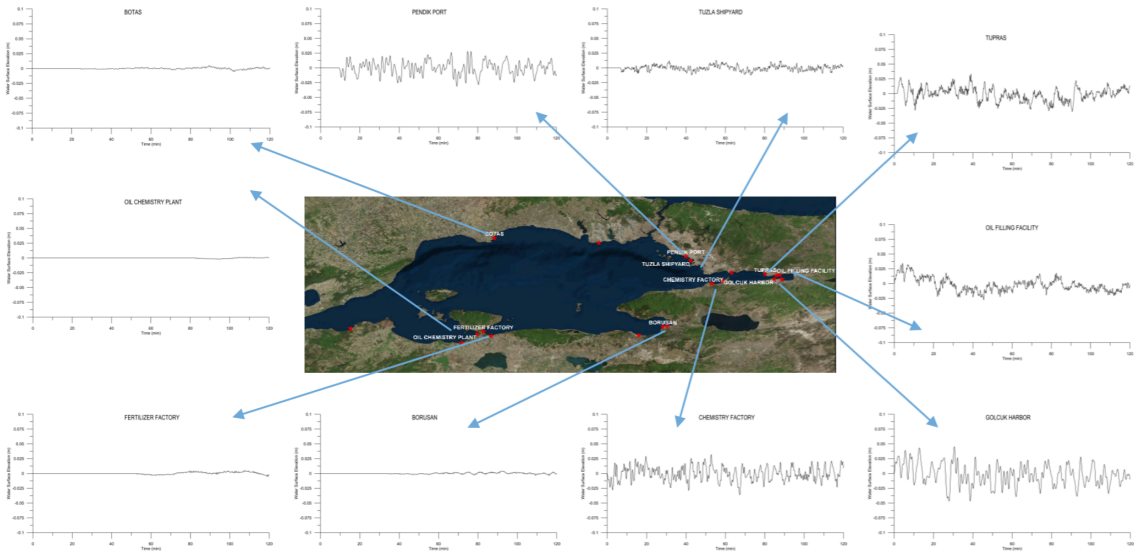

Figure 104: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN22

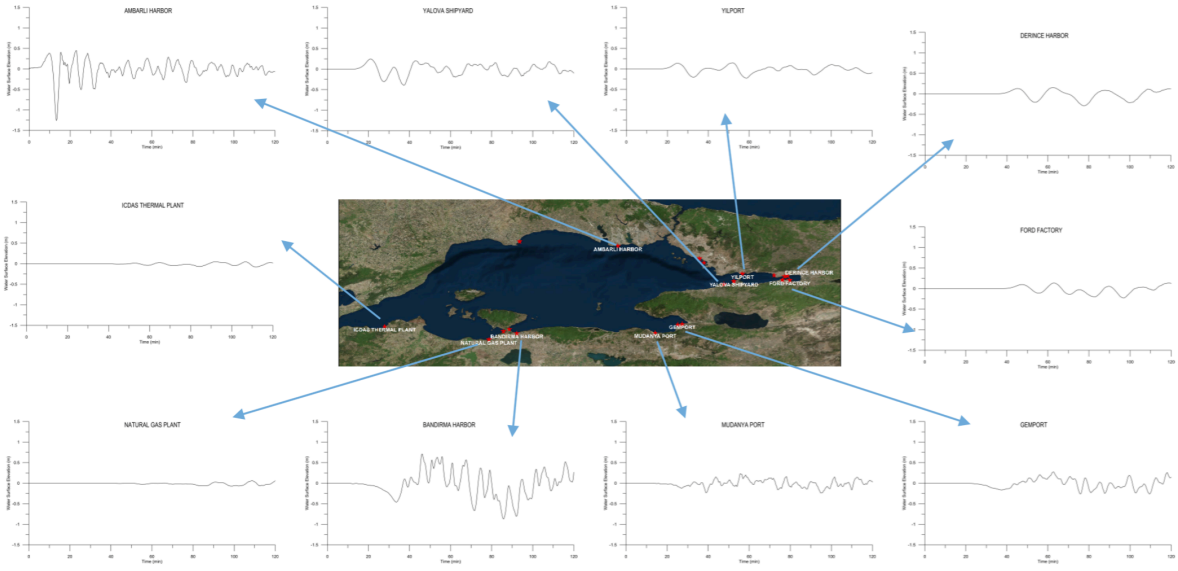

Figure 105: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN23

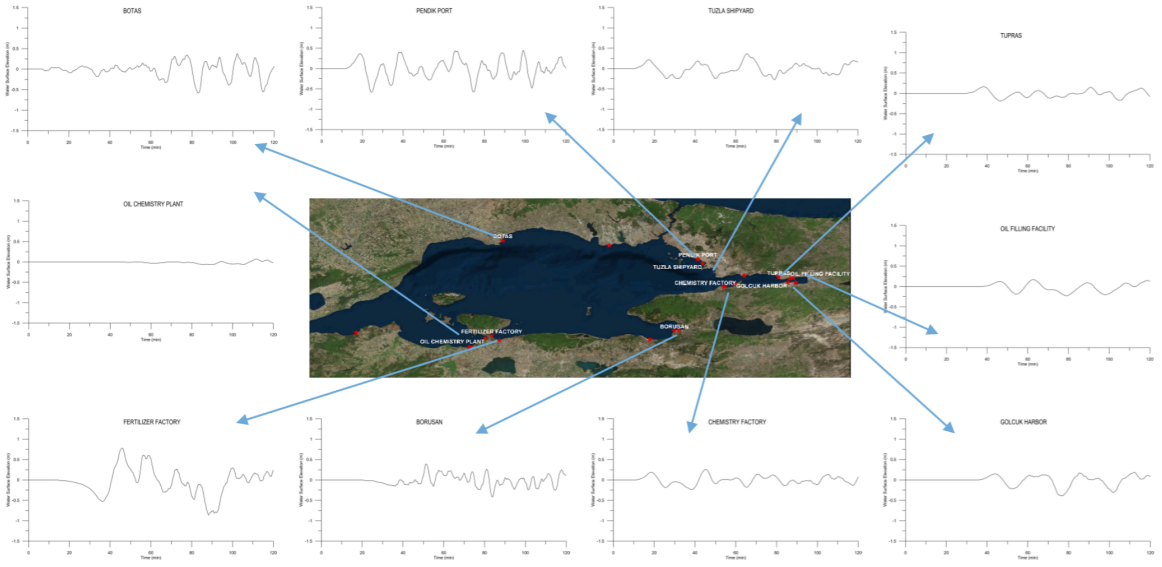

Figure 106: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN23

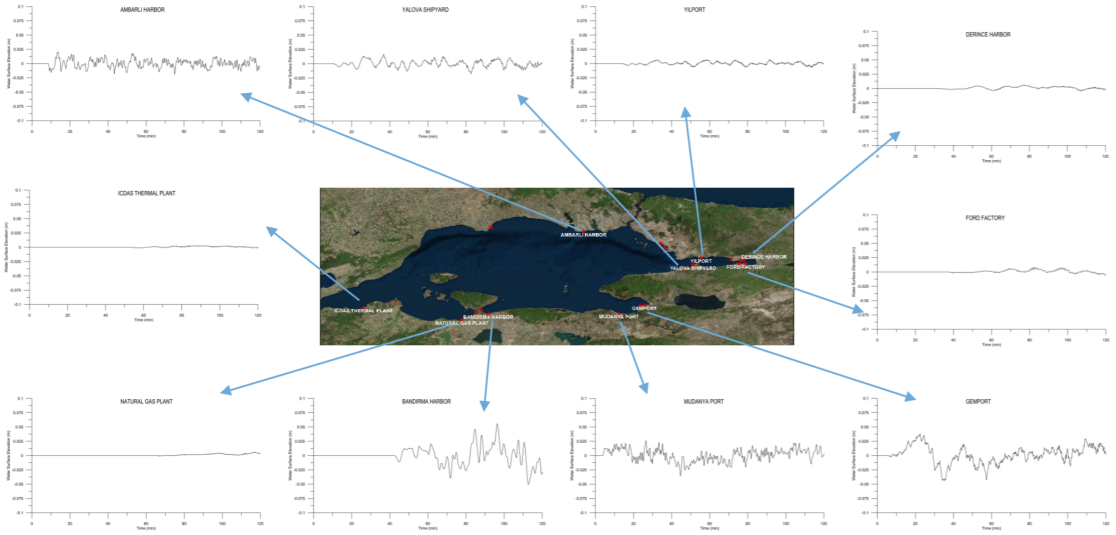

Figure 107: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN24

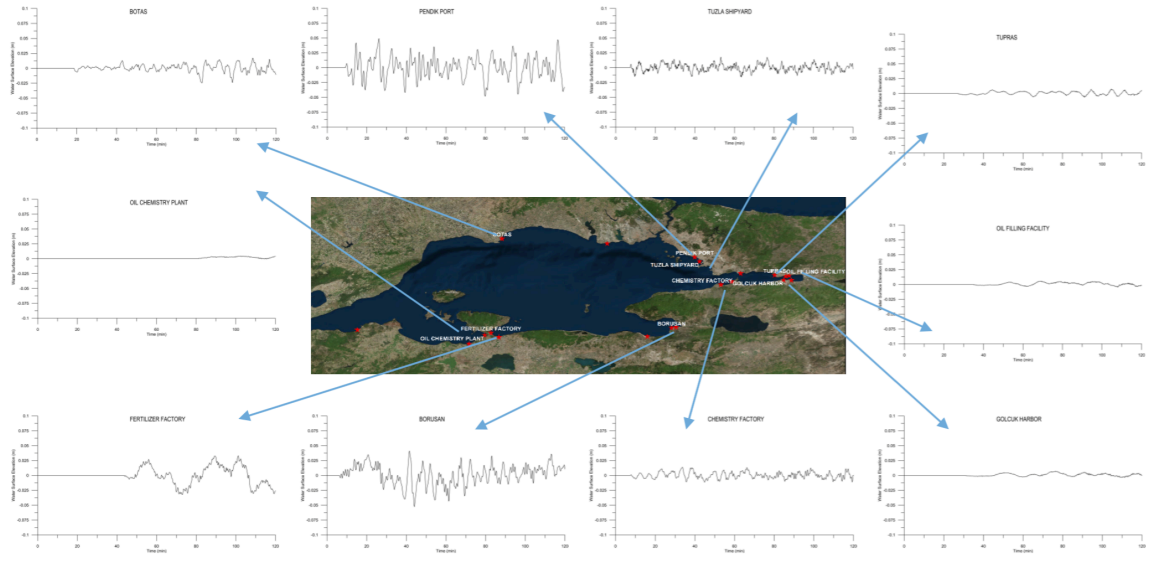

Figure 108: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN24

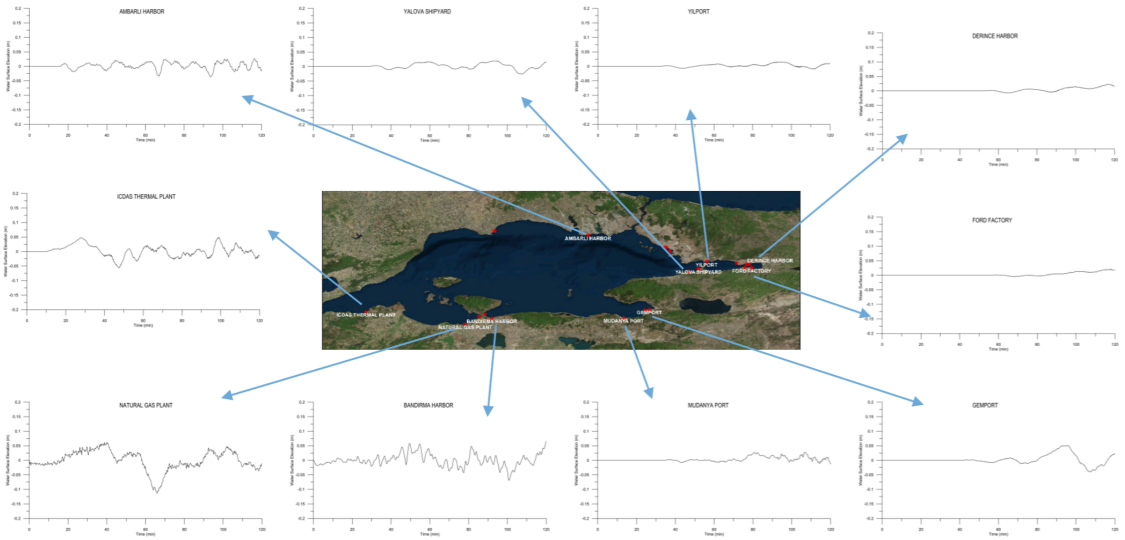

Figure 109: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN25

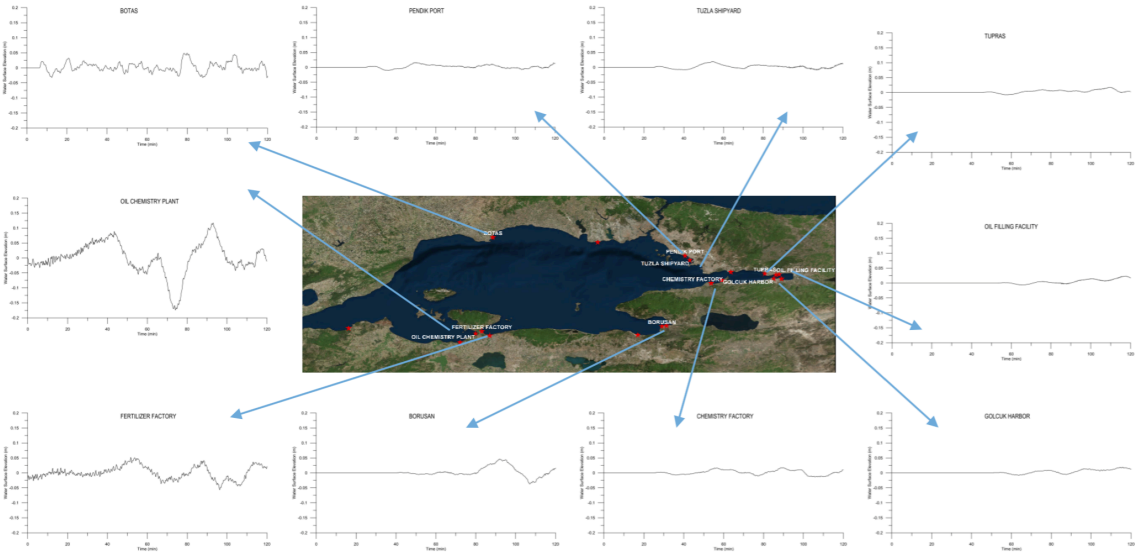

Figure 110: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN25

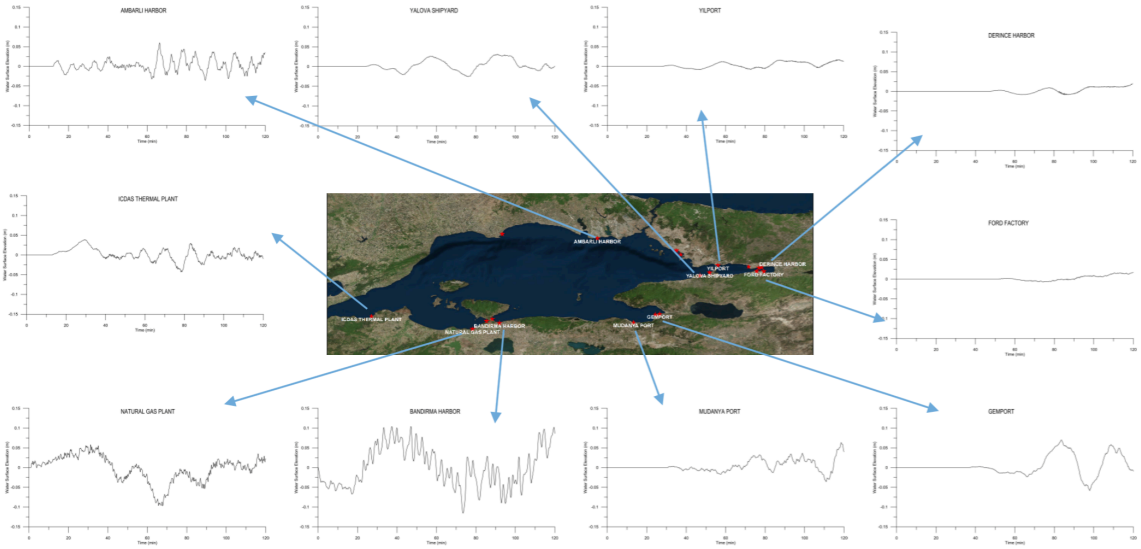

Figure 111: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN26

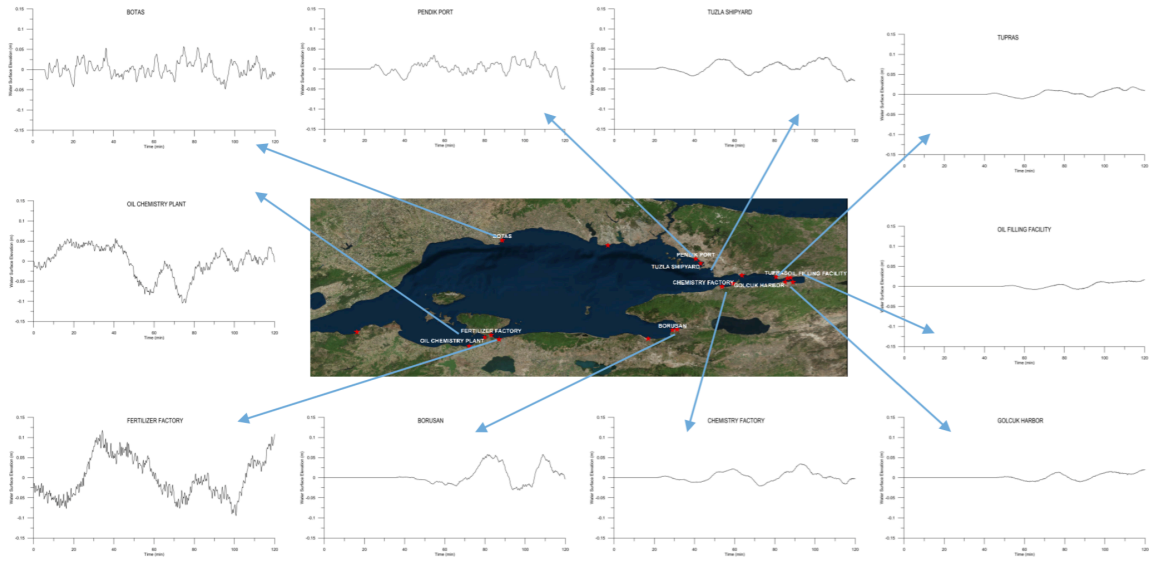

Figure 112: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN26

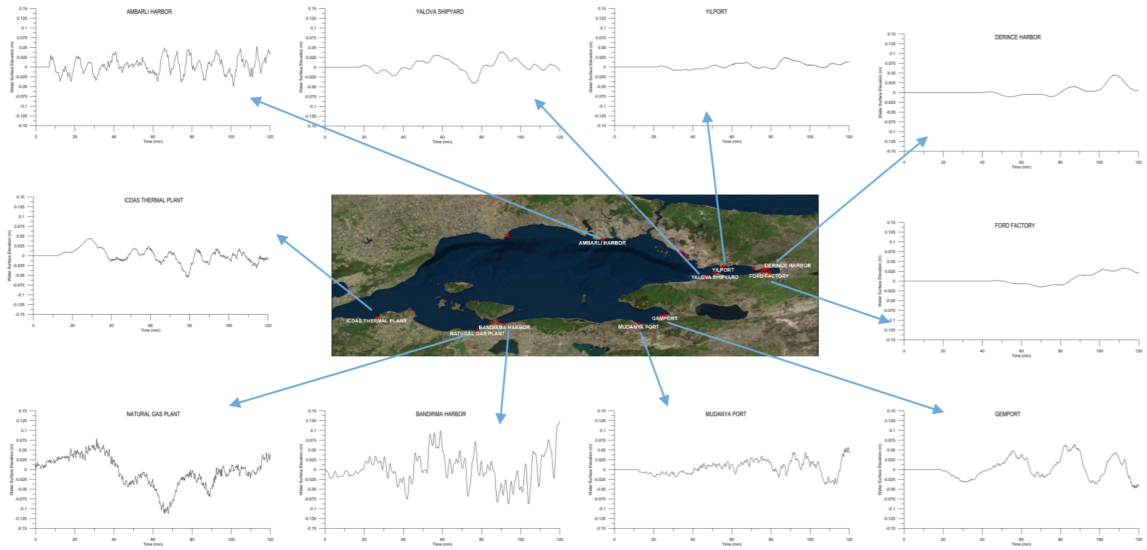

Figure 113: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN27

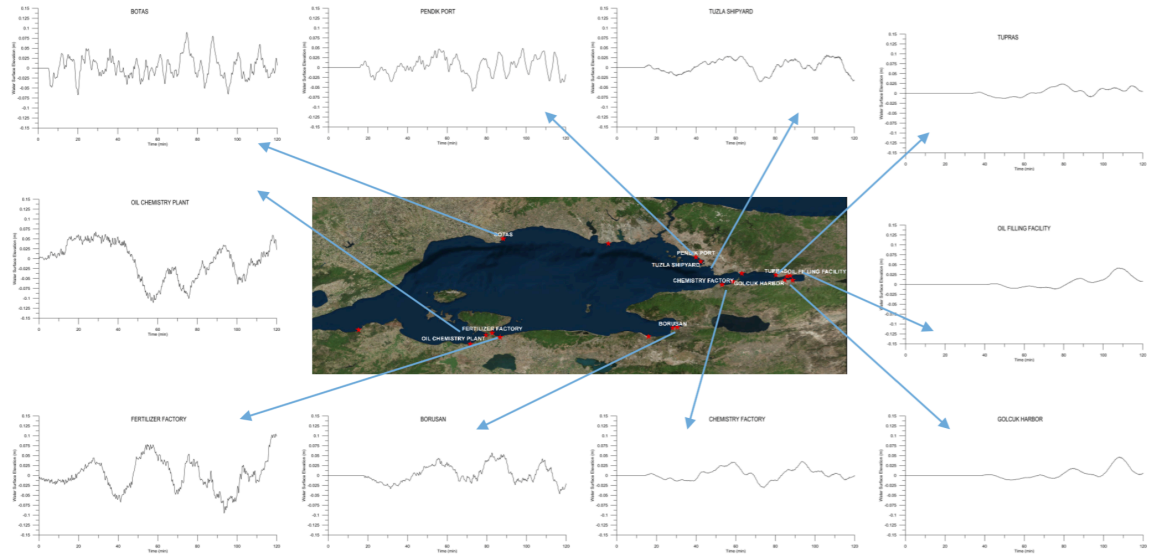

Figure 114: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN27

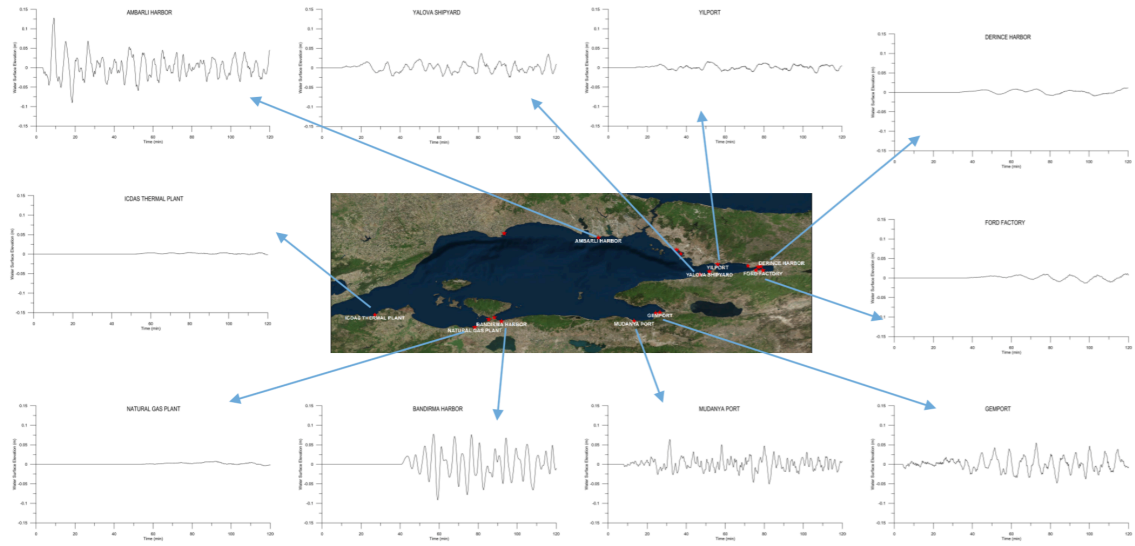

Figure 115: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN28

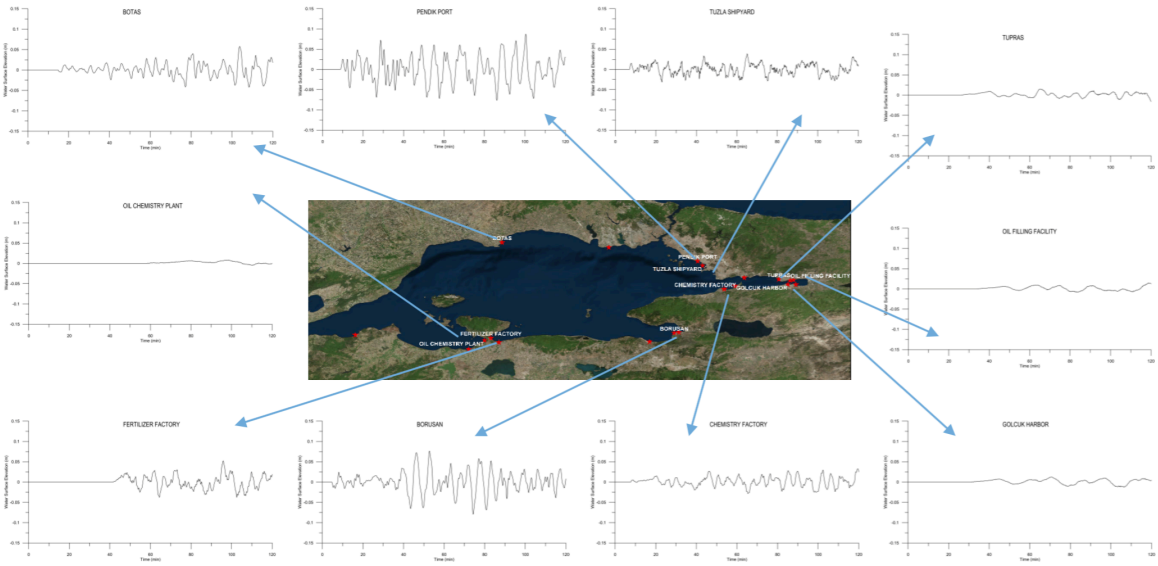

Figure 116: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN28

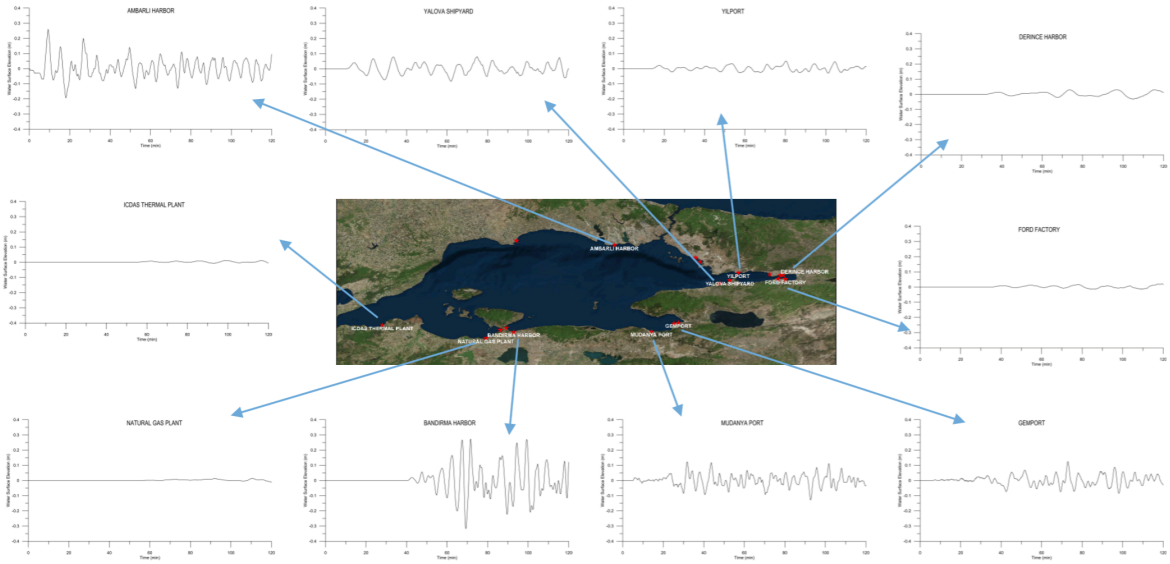

Figure 117: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN29

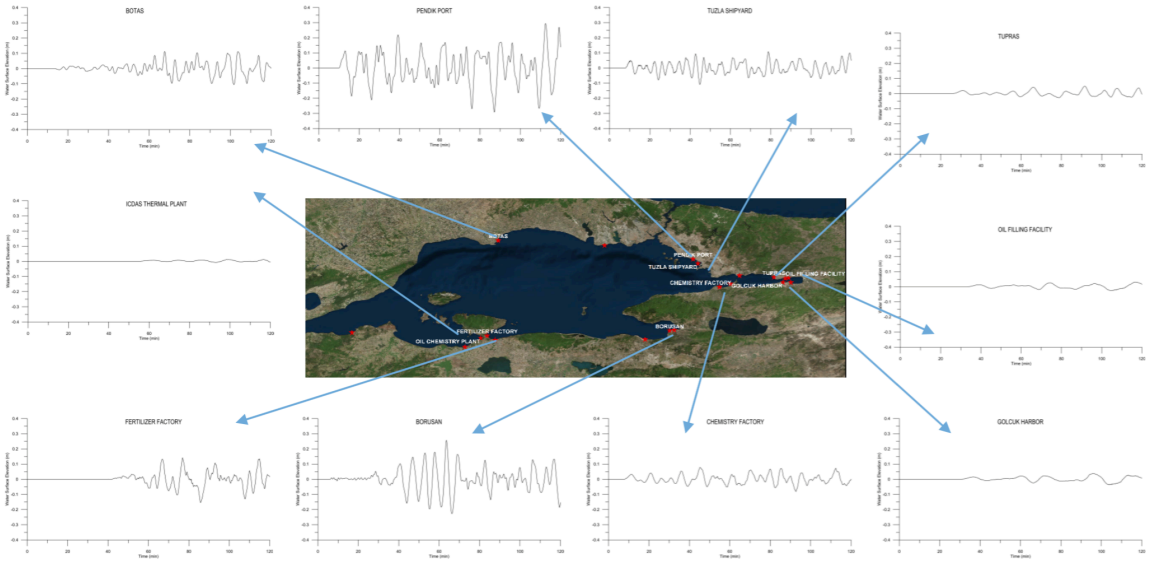

Figure 118: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN29

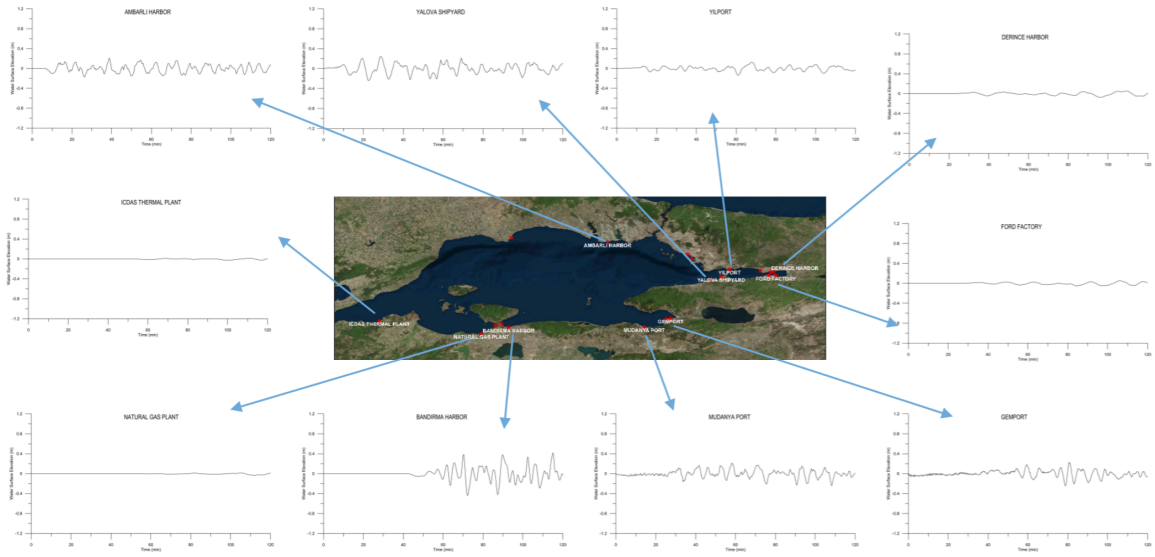

Figure 119: Water level fluctuations at Ambarli Port, Yilport, Derince Harbor, Ford factory, Gemport, Yalova Shipyard, Mudanya Port, Bandirma Harbor, a natural gas plant and ICDAS thermal plant calculated for Scenario SN30

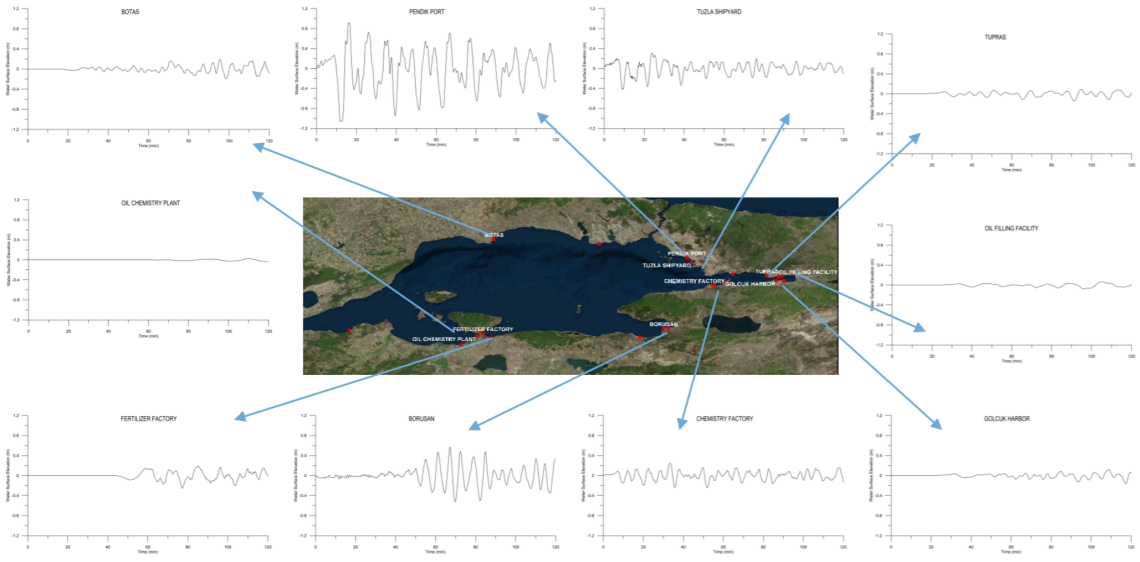

Figure 120: Water level fluctuations at BOTAS, Pendik Port, Tuzla Shipyard, TUPRAS refinery, an oil filling facility, Golcuk Harbor, a chemistry factory, Borusan, a fertilizer factory and an oil chemistry plant calculated for Scenario SN30