

# TC202: Task Force Activity

**TF1:** Alternative, non-traditional geomaterials

Chief: Dr Jennifer NICKS  
(USA)



**TF2:** Stabilization and reinforcement of geomaterials

Chief: Prof Erol TUTUMLUER  
(USA)



**TF3:** Traditional and intelligent sensing methods

Chief: Prof Anand PUPPALA  
(USA)



**TF4:** Rail track substructures & transportation geodynamics

Chief: Prof William POWRIE  
(UK)



**TF5:** Harbour geotechnics

Chief: Prof Alexandre PINTO  
(Portugal)



**TF6:** Climatic effects on geomaterial behaviour

Chief: Prof Yujun CUI  
(France)



**TF7:** Geotechnical asset management

Chief: Prof Mike WINTER  
(UK)



**TF8:** Organization of conferences, workshops, and webinars

Chief: Prof Tatsuya ISHIKAWA  
(Japan)



**TF9:** Transportation Geotechnics journal

Chief: Prof António G. CORREIA  
(Portugal)



**TF10:** Recruiting early-career and mid-career members

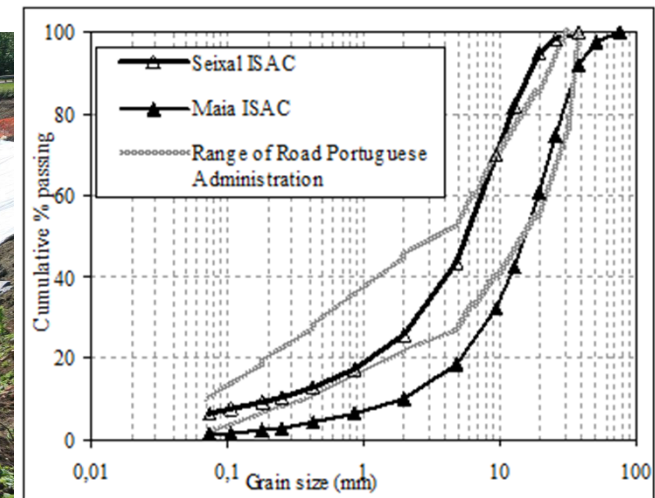
Chief: Dr Jennifer NICKS  
(USA)



## TC202: Task Forces

**Task Force 1:** Alternative, non-traditional geomaterials (e.g. recycled, lightweight, or by-products)

Leaders: Jennifer NICKS (C), others to be added once TC membership completed



ISAC - Inert Steel Aggregate for Construction

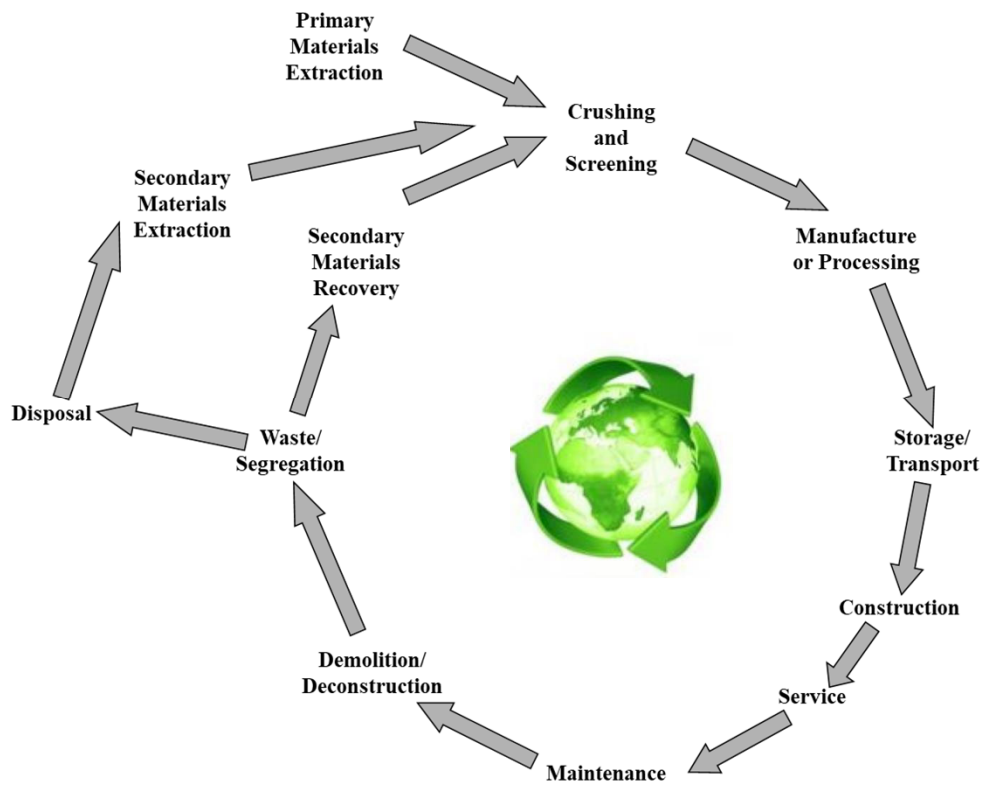




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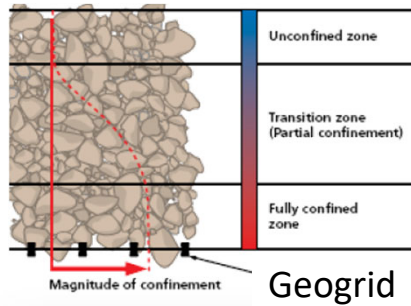
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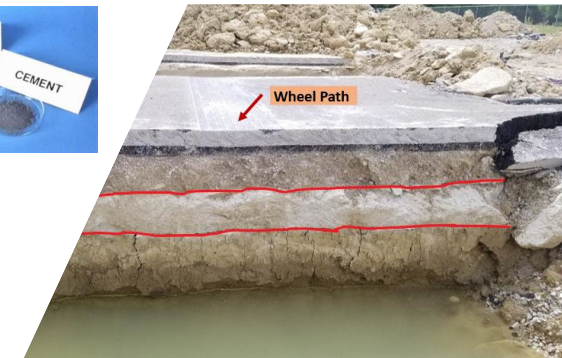
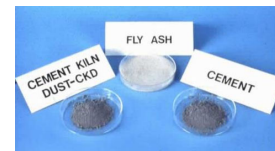
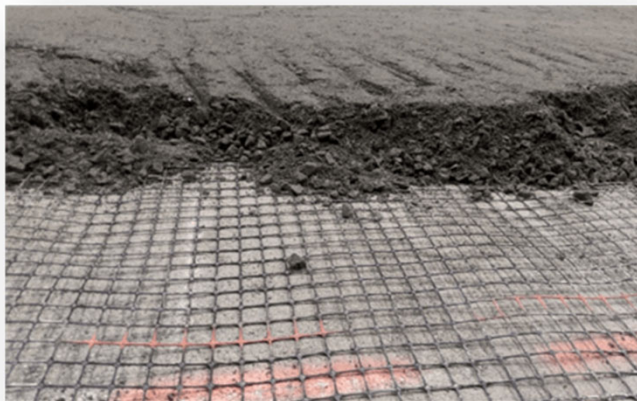
# TC202: Task Forces

**Task Force 2:** Stabilization and reinforcement of geomaterials to include mechanical, chemical, and biological methods

Leaders: Erol TUTUMLUER (C), Seong-Wan PARK



Geogrid



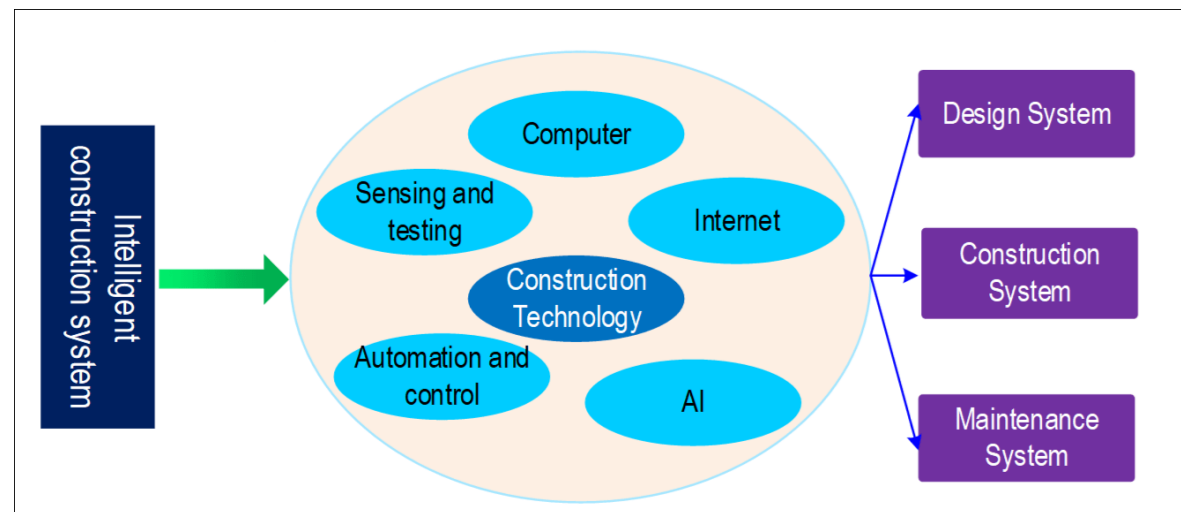
# TC202: Task Forces

**Task Force 3:** Traditional and intelligent sensing methods, digitalization, and (big) data management and analysis for construction and condition assessment

Leaders: Soheil NAZARIAN (C - TBC), António GOMES CORREIA, Andreas LOIZOS, Anand PUPPALA

Digital As-Built of Existing infrastructure – Digital Twin Creation: Tools and challenges:

- Sensors and drones to collect data and imagery software
- Machine Learning and Artificial Intelligence
- Reality Models or Mixed Reality Models
- Data Processing
- Delivered using digital models
- Storage and sharing
- Asset management

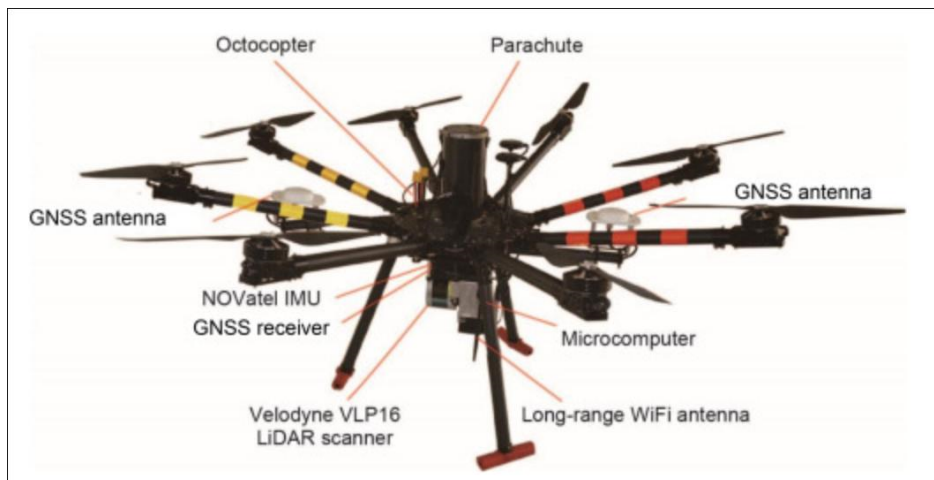




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**Task Force 3:** Traditional and intelligent sensing methods, digitalization, and (big) data management and analysis for construction and condition assessment

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# TC202: Task Forces

## **Task Force 4:** Rail track substructures, including transition zones, and transportation geodynamics

Leaders: William POWRIE (C), Xuecheng BIAN, Buddhima INDRARATNA

### **Modus operandi**

- Awareness / support / putting in mutual contact research projects in strategic areas
- State of the art / practice, review and white papers when there is sufficient maturity

### **Strategic areas: ongoing projects**

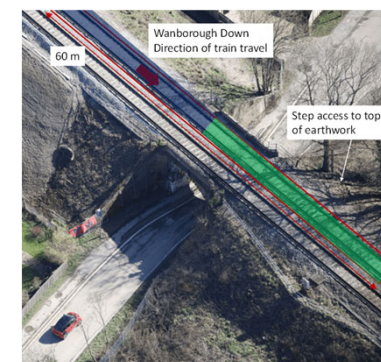
- Understanding transitions including switches & crossings
- New instrumentation for trackbeds, including optical fibre
- Geosynthetics, marginal materials and nature-based solutions in trackbed design
- Climate change impacts and resilience; drainage, desiccation, vertical and lateral support
- Soil mechanics models for track behaviour, including settlement and mud pumping

### **Position paper in preparation**

- Fundamental reappraisal of trackbed design principles

### **Future strategic areas**

- Understanding slab track-subgrade interactions and settlement adjustment capacity
- Rail track geodynamics



# TC202: Task Forces

## **Task Force 5:** Harbour geotechnics

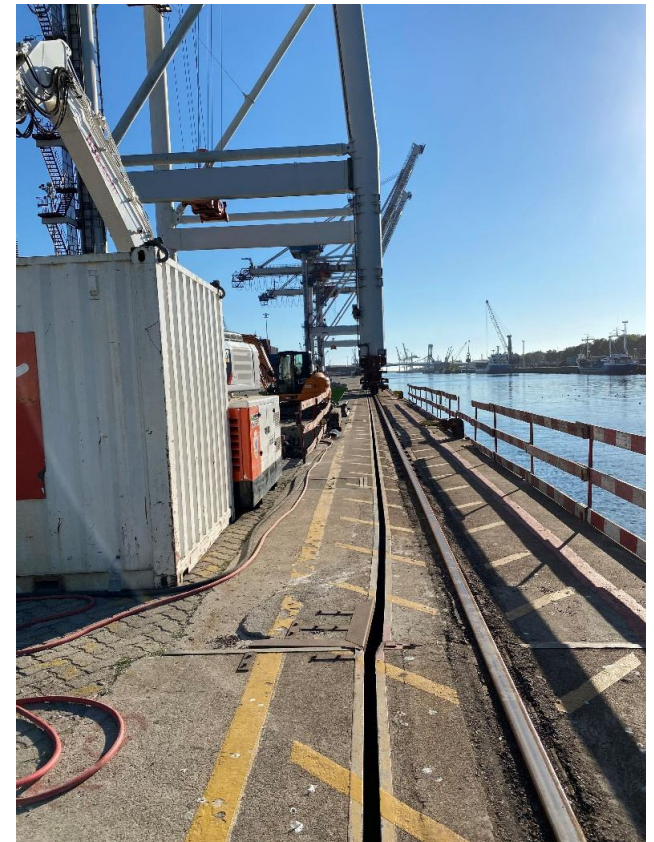
Leaders: Alexandre PINTO (C) and others to be added once TC membership completed

### **Modus operandi**

- Awareness / support / putting in mutual contact research projects in strategic areas
- State of the art / practice

### **Strategic areas:**

- Harbour structures geotechnical behaviour
- Climate change impacts
- New vessels challenges on existent structures
- Embankments restraints at back areas

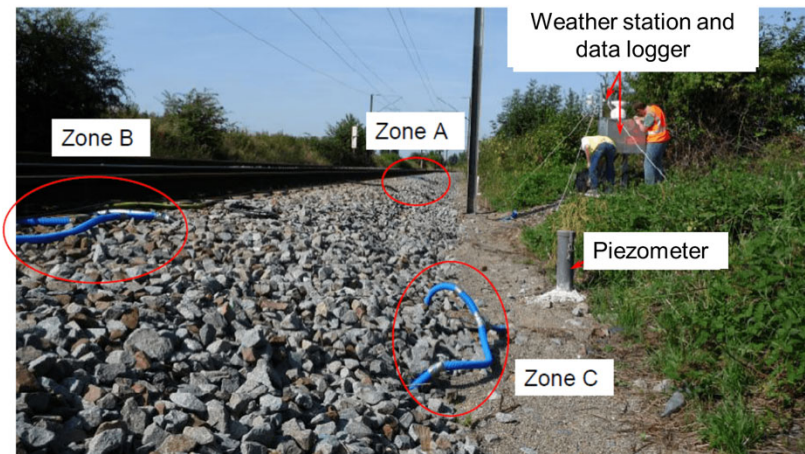




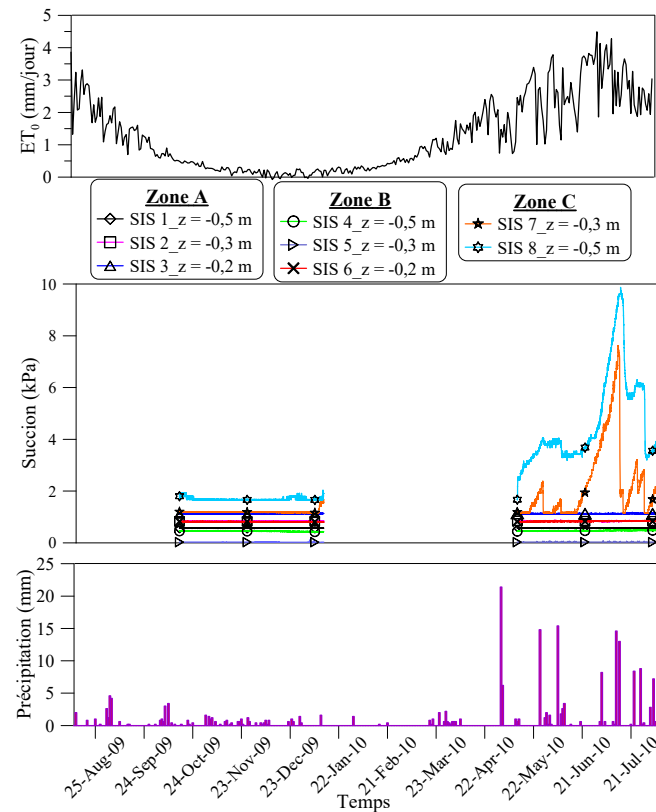
# TC202: Task Forces

**Task Force 6:** Climatic effects on geomaterial behaviour related to mechanics of unsaturated transportation foundations

Leaders: Yujun CUI (C), Tatsuya ISHIKAWA



Monitoring of Moulin Blanc site, France



## TC202: Task Forces

**Task Force 7:** Geotechnical asset management, including geohazard risk to transport infrastructure: hazard, risk, vulnerability, climate change, resilience and adaptation

Leaders: Mike WINTER (C), Tatsuya ISHIKAWA, Bernardo CAICEDO





# TC202: Task Forces

**Task Force 7:** Geotechnical asset management, including geohazard risk to transport infrastructure: hazard, risk, vulnerability, climate change, resilience and adaptation

Leaders: Mike WINTER (C), Tatsuya ISHIKAWA, Bernardo CAICEDO

