



Landsat5, 1984-04-23



Landsat5, 2010-09-22



Sentinel-2, 2016-07-20



Sentinel-2, 2023-05-10 (overlay: land reclamation projects)

Coastal city development

Wenzhou, a coastal city in southeastern China, is an example of the quick development of Chinese communes. To meet the growing demands of urban and economic development it has embarked on large land reclamation projects. These projects involve the creation of new land by filling in coastal areas with sand and soil and can be found in many places along the coast of China.

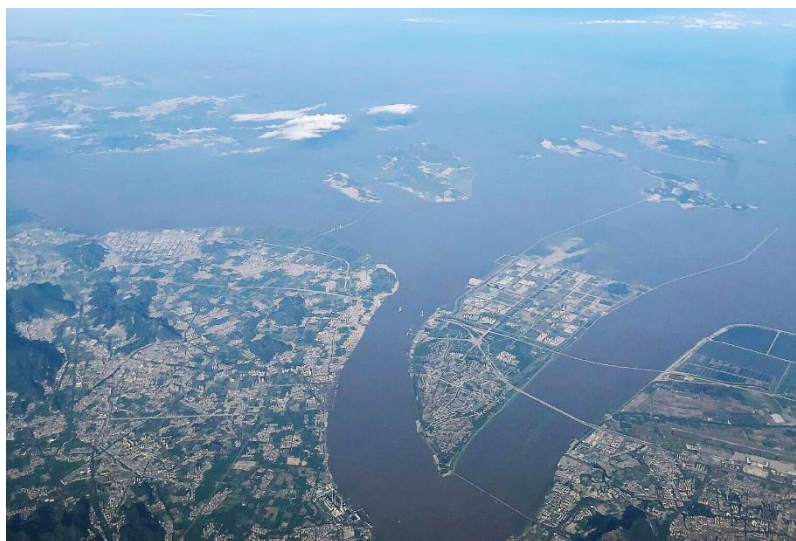
Wenzhou's land reclamation projects have been executed in several phases over the past few decades and have played a significant role in creating land for residential, commercial, and recreational purposes. Additionally, the projects aim at preventing coastal floods. The Oufei Project is the largest single land reclamation project in China. Comparing satellite maps of the region reveal the extent of the landscape change in the region.

Environmental sustainability is an important factor in Wenzhou's land reclamation projects, as they influence the local tidal currents and the marine ecosystem. Measures have been put in place to mitigate ecological impact, including the establishment of protected marine areas, the restoration of wetlands, and the implementation of eco-friendly construction practices.

Exercises

- **Satellite Maps:**
 - Look at the satellite image maps and discuss the changes that occurred in the region between 1984 and 2023.
 - Which factors have limited the growth of the settlement areas?
 - Try to identify areas in which these limitations have been overcome and describe how this was done.
 - Try to identify changes in the land-use in the region and especially the land-use in the newly gained areas.
 - Using the overlay of the land reclamation areas, try to estimate the areas gained by the projects.

Additional Material



Aerial view of the coast near Wenzhou (photograph: Simon Wade).

Links and Sources:

- <https://www.seetao.com/details/212920.html> - Background information about the Oufei land reclamation project

Material

Section:	<i>Anthroposphere</i>
Theme:	<i>City Development</i>
Case study:	Wenzhou
CS-ID:	ANT09_2
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Teaser	Wenzhou – land reclamation at the Chinese coast
Background/ Intro	<p>Wenzhou, a coastal city in southeastern China, is an example of the quick development of Chinese communes. To meet the growing demands of urban and economic development it has embarked on large land reclamation projects. These projects involve the creation of new land by filling in coastal areas with sand and soil and can be found in many places along the coast of China.</p> <p>Wenzhou's land reclamation projects have been executed in several phases over the past few decades and have played a significant role in creating land for residential, commercial, and recreational purposes. Additionally, the projects aim at preventing coastal floods. The Oufei Project is the largest single land reclamation project in China. Comparing satellite maps of the region reveal the extent of the landscape change in the region.</p> <p>Environmental sustainability is an important factor in Wenzhou's land reclamation projects, as they influence the local tidal currents and the marine ecosystem. Measures have been put in place to mitigate ecological impact, including the establishment of protected marine areas, the restoration of wetlands, and the implementation of eco-friendly construction practices.</p>
Other material	
Maps	Time Series 5-years interval since 1985? Landsat/Sentinel-2; real-colour (and FIR?)
OL Realisation	Time Series To be updated – cycle: 5 years
Exercises	<ul style="list-style-type: none"> <i>Satellite Map:</i> <ul style="list-style-type: none"> Looking at the satellite image maps, estimate the area of the city in 2017 and in 2023, respectively. By which factor has the area increased?

	<ul style="list-style-type: none"> How does this relate with the population increase during this time span? Green areas in the satellite images are covered with vegetation. What types of vegetated areas do you expect in this environment (e.g. pastures, urban green, golf courses, crop fields, ...)? Think about the role of water for our society. What is it needed for? Where does the water for your hometown come from? EO Browser: <ul style="list-style-type: none"> Open EO Browser Find the most recent Sentinel-2 dataset covering the area displayed in the satellite map Select a natural colour representation Can you identify additional, recent changes in the area?
Data	Landsat
PDFs	
See also	[internal links to other case studies]
External Links	
Link to Book	Page XX
Sources	<ul style="list-style-type: none"> http://wz.china.com.cn/2022-12/16/content_42206192.html https://www.researchgate.net/figure/Aerial-view-of-the-Oufei-reclamation-site-in-Wenzhou-China_fig1_324974194 https://www.researchgate.net/figure/Layout-of-the-Oufei-Tideland-Reclamation-project-Wenzhou-China_fig6_345372574 https://www.seetao.com/details/212920.html



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