

# Spatial Technology Application in Chinese Transportation

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## Contents

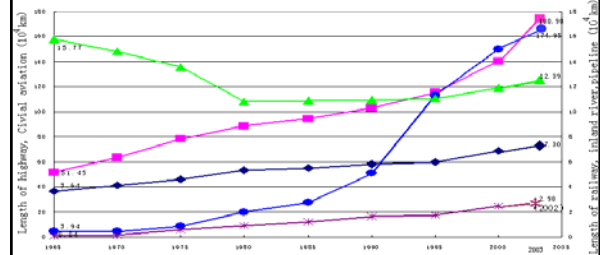
1. *Development of Chinese transportation*
2. *Challenges from transportation development*
3. *Current application of spatial technology (RS,GPS,GIS) in Chinese transportation*
4. *The new opportunity for spatial technology in Chinese transportation*
5. *The cooperation between CATS, MOC,P.R.China and RSPA/RITA, U.S.DOT*

### 1. Development of Chinese transportation

Over decades of development, China have acquired great achievements in transportation construction.

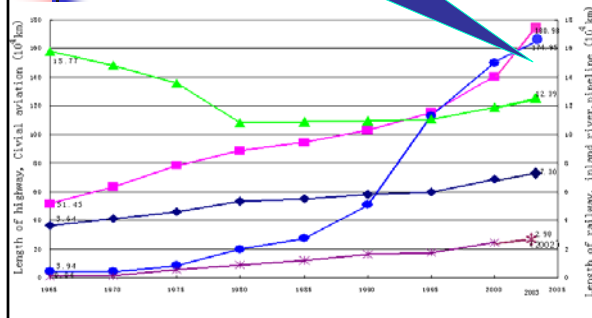
#### Development of Chinese transportation

The overall scale of transportation network is close to 3.8 million kilometers in 2003, three times that of 1980.



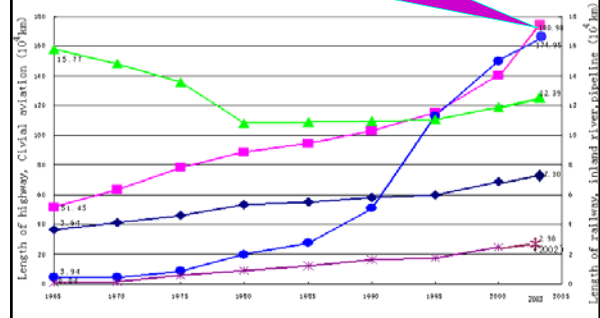
#### Development of Chinese transportation

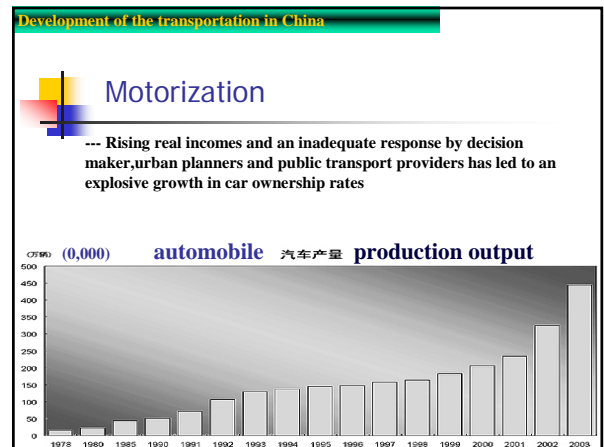
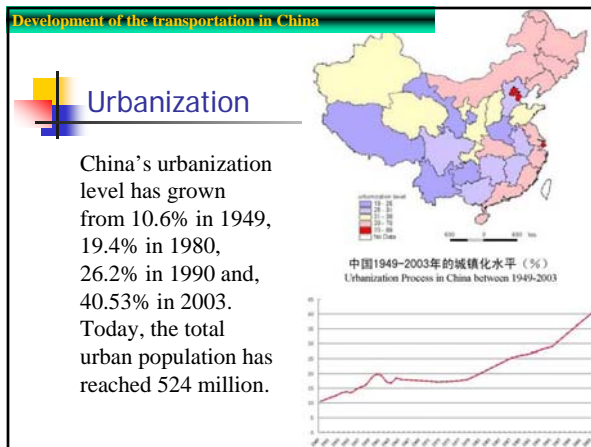
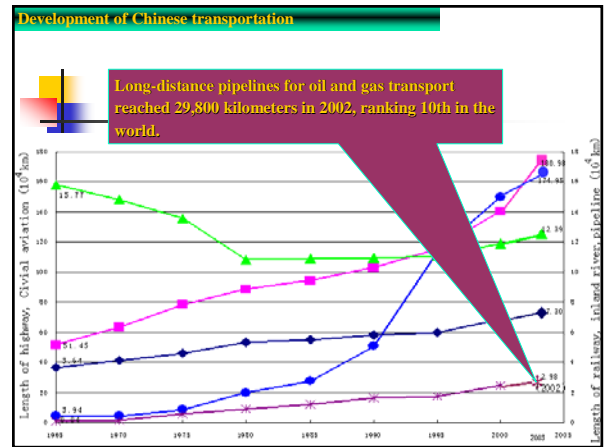
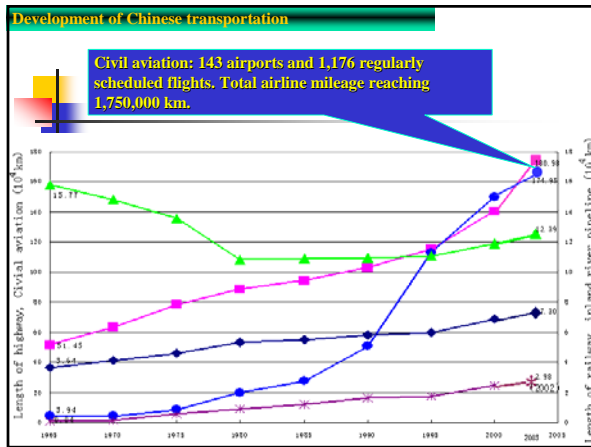
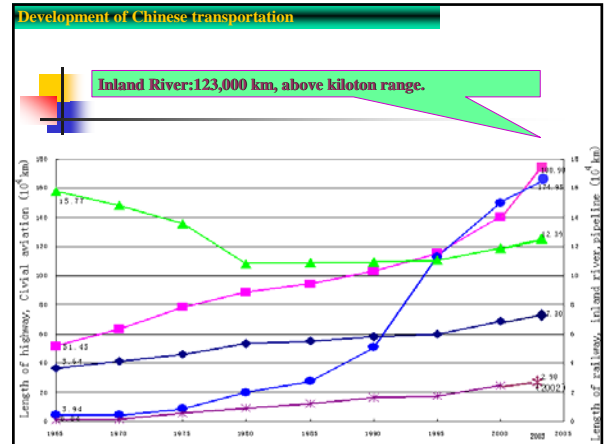
Railway: 73,000 km, ranking the third in the world



#### Development of Chinese transportation

Highway: 1.87 million km, the fourth in the world.  
Expressway: 34,000 km, the second in the world.





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### Challenge from transportation

- Heavy destroy in landscape and ecological system



### Challenge from transportation

- Frequent natural hazards and disasters
- Occupation to resources



### Challenge from transportation

- Heavy traffic congestion



### Challenge from transportation

One of Key reasons is

Laggard means in the process of designing, constructing, operating, monitoring, managing, ....

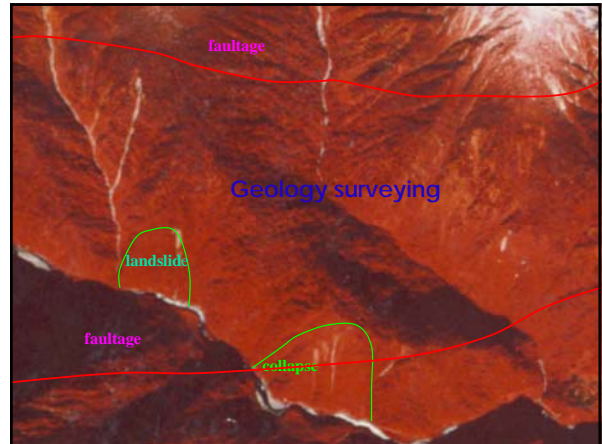
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## Remote Sensing (RS)

Mainly used in the designing period:

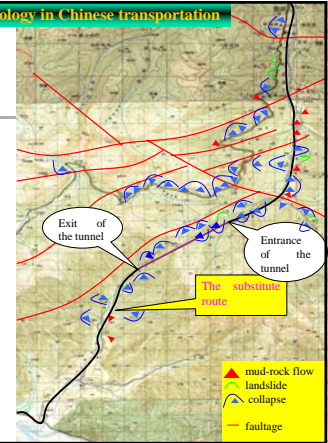
- Geology surveying
- **Alignment designing**
- 3D simulation
- Road network drawing



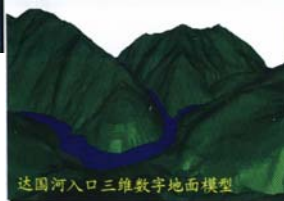
## Alignment designing



## Route comparing



## 3D simulation of scheme



## GIS

Widely used in transportation, especially in the information system of transportation



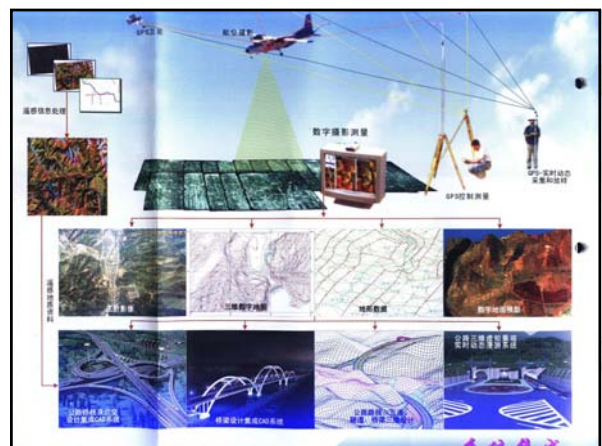
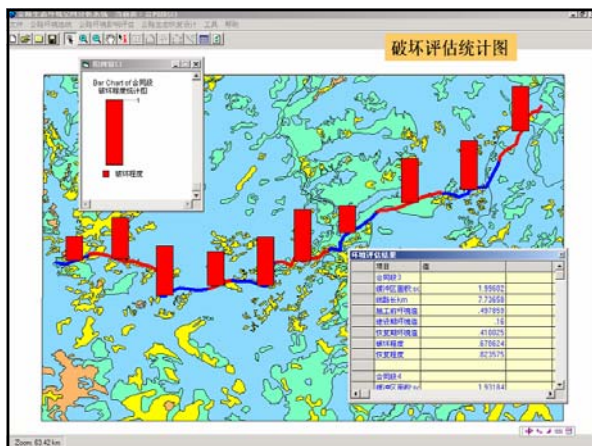
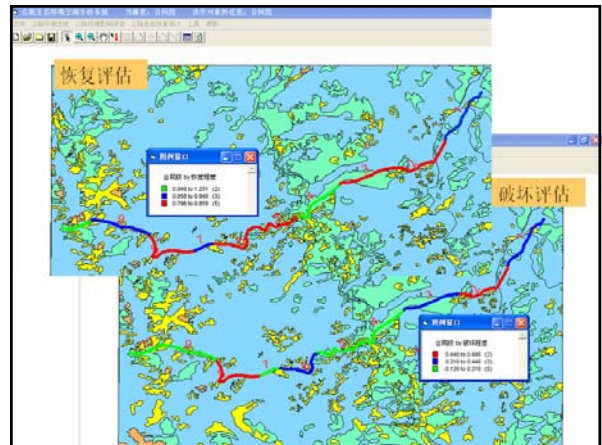
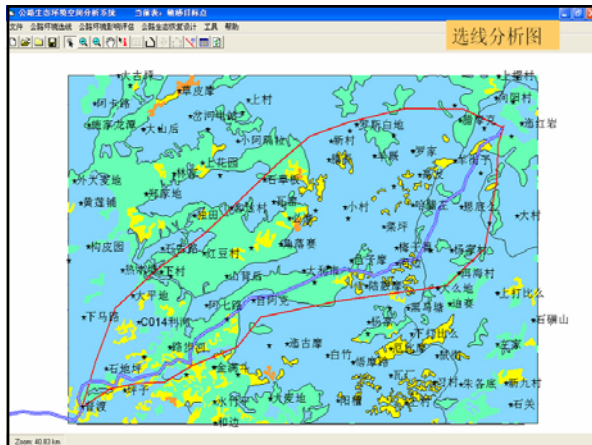
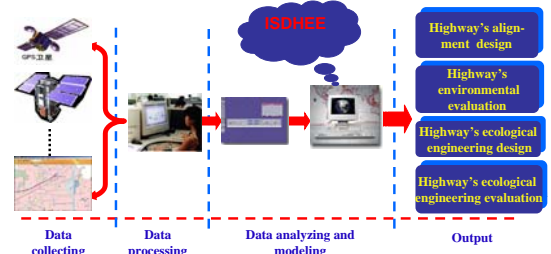
## GPS

Widely used in transportation, especially in

- Route surveying
- Vehicle navigation
- Logistic monitoring
- Special vehicle tracking

## Integrated Scheme of RS,GIS,GPS

Information System for Designing Highway Ecology Environment



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## The new opportunity for spatial technology in Chinese transportation

1. The national "863" plan, sponsored by MOST of P.R.China, will list a transportation item, which will specially fund the research on spatial technology application in transportation.
2. China cooperate with EU in the GALILEO program. Transportation department will be the greatest user for the GALILEO.
3. CATS is applying to build a special laboratory for spatial technology application research in transportation from MOC.

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## The cooperation between CATS and RITA(RSPA)

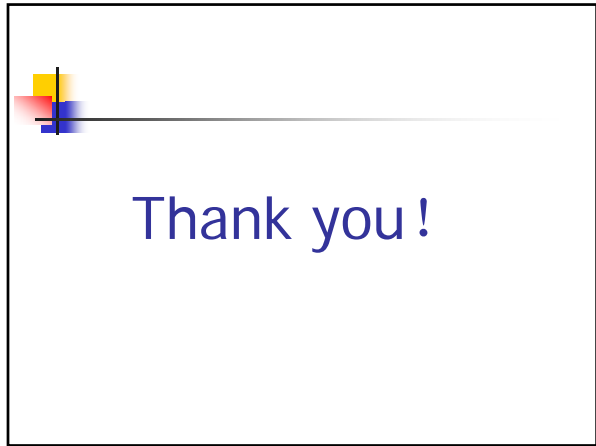
1. 2001.Oct, China-U.S. joint workshop on Remote Sensing application in transportation in Beijing.
2. 2005.Jan, agreement on transportation cooperation between CATS and RSPA was subscribed in Abudhabi in United Arab Emirates.

## Main contents of the agreement:

- ❖ Annual meetings or joint organization of academic symposia
- ❖ No-cost exchange of transportation technical materials or information;
- ❖ Exchange of transportation experts for special technical seminars and short-term work;
- ❖ Exchange of academic researchers and graduate students on projects of mutual interest;
- ❖ Joint research in specific scientific experiments;
- ❖ Implementation of common transportation projects;

## The cooperation between CATS and RITA(RSPA)

3. 2006.Jan, further cooperation plan on spatial technology application in transportation is designed between CATS and RITA:
  - ❖ An international workshop
  - ❖ A joint laboratory
  - ❖ Transportation statistics
  - ❖ Environment and sustainable transportation



Thank you!