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Application of Science and Technology in Disaster Insurance

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PICC
中国人保财险

Application of Science and Technology in Disaster Insurance
科学技术在灾害保险中的应用

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Disaster Insurance

灾害保险是保险人对于合同约定的可能发生的灾害因其发生所造成的财产损失承担赔偿保险金责任，或者当被保险人死亡、伤残等条件时承担给付保险金责任的保险行为。

Disaster Insurance is an agreement that the insurer undertakes to pay the insured or his beneficiary a specified amount of money in the disaster event that the insured suffers property & casualty loss through the occurrence of an event covered by the insurance contract (policy).

- 综合保险：承保自然灾害、意外事故等综合灾害责任

Multi-peril insurance: insurance coverage include natural disaster, accidents and so on

- 专项保险：承保单一灾害责任，主要为巨灾保险。主要模式：

Single-peril insurance: insured specific disaster, mainly catastrophe insurance. Main patterns:

政府主导型
Government-led
新西兰地震保险
Earthquake insurance (New Zealand)
美国洪水保险
Flood insurance (USA)

市场主导型
Market-led
□英国洪水保险
Flood insurance (UK)
□美国地震保险制度
Earthquake insurance (USA)

政府引导、市场参与型
Government-led, Market-in
日本地震保险
Earthquake insurance (Japan)
土耳其地震保险
Earthquake insurance (Turkey)

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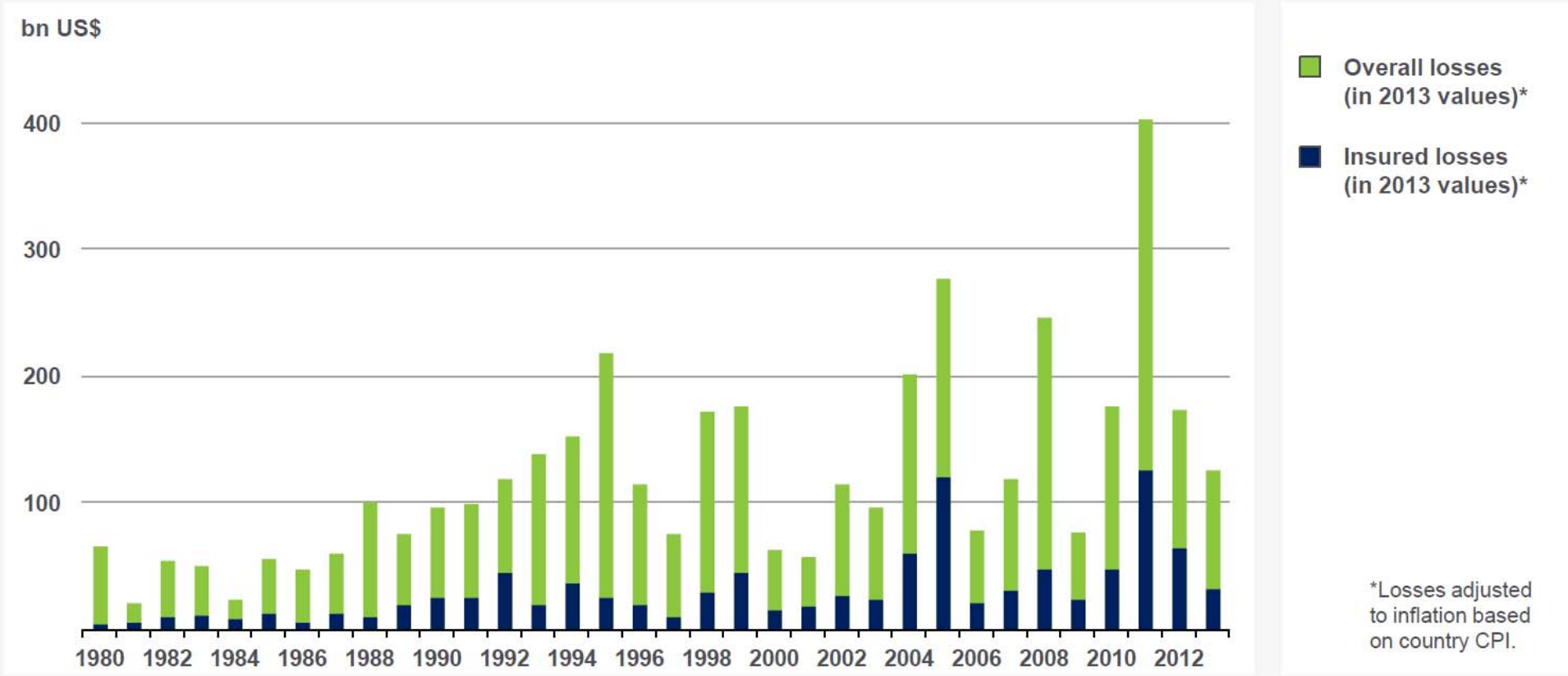
Natural Disaster and Insurance Loss Increasing

Loss events worldwide 1980-2013



(Munich RE, 2013)

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Overall Loss and Insured loss of Catastrophic Events Worldwide

灾害事件 Catastrophic Events	强度 Intensity	经济损失 Overall Loss ($100 million)	保险赔付 Insured loss ($100 million)	保险赔付比例 compensation Ratio (%)
美国北岭地震（1994） Northridge Earthquake in USA	6.6	490	150	30.6
Chinese Taipei 9·21地震（1999） 9.21 Earthquake in Chinese Taipei	7.7	120	10	8.3
纽约世贸大楼恐怖袭击（2001） 911 Terrorist Attacks		2750	400	15.0
印尼地震海啸（2004） Indonesian Earthquake Tsunami	9.1	100	10	10.0
日本阪神大地震(1995) Kobe Earthquake in Japan	7.3	1000	40	4.0
卡特里娜飓风（2005） Hurricane Katrina		1500	650	43.0
中国雨雪冰冻灾害（2008） Freezing Rain and Snow Disaster in China		239	7.9	3.3
中国汶川地震（2008） Wenchuan Earthquake in China	8.0	1299	2.6	0.2
新西兰克赖斯特彻奇地震（2011） Christchurch Earthquake in New Zealand	6.3	150	120	80.0
东日本大地震(2011) Great East Japan Earthquake	9.0	2100	350	16.7

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PICC Property & Casualty Company

- **中国人民保险集团股份有限公司**
  The People's Insurance Company of China Limited
- 成立于1949年，为中国第一家保险公司，并于2007年改为中国人民保险集团公司
  Founded in 1949, the first insurance company, named the people's insurance company of china in 2007
- 2013年世界五百强（Fortune 500）第256位
  NO.256, Fortune 500 (2013)
- **中国人民财产保险股份有限公司**
  PICC Property and Casualty Company Limited
- 2013年，财产险保费2230亿元，占非寿险市场份额为34.4%
  The property insurance premium income is ￥223 billion，shared 34.4% in non-life insurance market in 2013.
- 全球单一品牌财险公司中位列第二
  NO.2 single brand insurance company worldwide
- 亚洲最大的非寿险公司 Asian biggest non-life insurance company
- 中国最大的非寿险公司 Biggest non-life insurance company in china
- 国际信用评级A+级 A+ International credit ratings

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Disaster Research Center

2010年，成立中国保险业首家专业风险研究机构**灾害研究中心**，主要针对**灾害与保险交叉领域**开展研究工作:

Disaster research center was founded in 2010 as the first risk research center in Chinese insurance industry. The center mainly focuses on disaster and insurance crossing field.

- 需求（灾害与保险交叉领域）
  Demands (disaster and insurance crossing fie
- 合作（政府、专业院校、研究机构）
  Cooperation(Government, Universities, Acad
- 人才培养
  Talent Cultivation
- 学术交流
  Academic Exchange
- 风险管理咨询服务
  Risk Management Consult

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Disaster insurance of PICC Property & Casualty Company

- 业务结构：车辆保险、财产保险、船舶货运保险、责任保险、信用保险、意外健康保险、能源及航空航天保险、农业保险等非寿险所有领域
  Automobile insurance, Property insurance, Hull & Cargo insurance, Liability insurance, Credit insurance, Casualty & Health insurance, Energy, Aviation & Space insurance, Agricultural insurance
- 灾害责任：台风、暴雨、洪水、干旱、地震、地质灾害等自然灾害；火灾、爆炸等意外事故
  Coverage: Natural disaster (Typhoon, Rainstorm, Flood, Drought, Earthquake, Geological disaster…) and Accident（Fire, Explosion… ）
- 以承保综合灾害责任为主
  mainly Multi-Peril insurance
- 专项巨灾保险正在试点推动
  Catastrophe insurance pilot in process
- 云南居民住房地震保险试点
  Resident Earthquake insurance in Yunnan
- 深圳巨灾保险试点
  Catastrophe insurance in Shenzhen




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Disaster insurance of PICC Property & Casualty Company

2008年雨雪冰冻灾害
Freezing Rain and Snow Disaster, 2008

2008年汶川地震
Wenchuan Earthquake, 2008

2013年余姚菲特台风
Fitow Typhoon in Yuyao, 2013

2012**年北京**7-21**特大暴雨**
7-21 Beijing Extreme Rainstorm, 2012

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Application Framework

面向业务需求
全流程闭环风险管理
Demand-oriented Close-loop Risk Management

- **按图承保** Map-based Underwriting
- **费率厘定** Premium Rating
- ……

- **快速评估** Rapid Loss Assessment
- **按图理赔** Map-based Claim Settlement
- ……

Risk Assessment

Underwriting

Loss Prevention

Claim Settlement

- **风险识别** Risk Identification
- **风险意识** Risk Awareness
- ……

- **风险排查** Risk Investigation
- **监测预警** Monitoring and Early Warning
- ……

信息技术 IT

空间信息技术 GIS,RS,GPS

物联网 Internet of Things

……

实践 Practice

技术 Technology

模式 Model

平台 Platform

以科技创新为动力
Motivated By Technology Innovation

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P1: Remote Sensing Applied in Agricultural Insurance

推动农业保险经营模式升级
Improving Agricultural Insurance Operation Model

平衡风险管理与经营效率
Balance on Risk Management and Operation Efficiency

解决信息不对称问题
Solving Information Asymmetry

降低成本，提高效率
Cost Down, Efficiency Increased

空间信息技术的创新应用
Innovation Application of Spatial Information Technology

地理信息系统

遥感技术

全球定位系统

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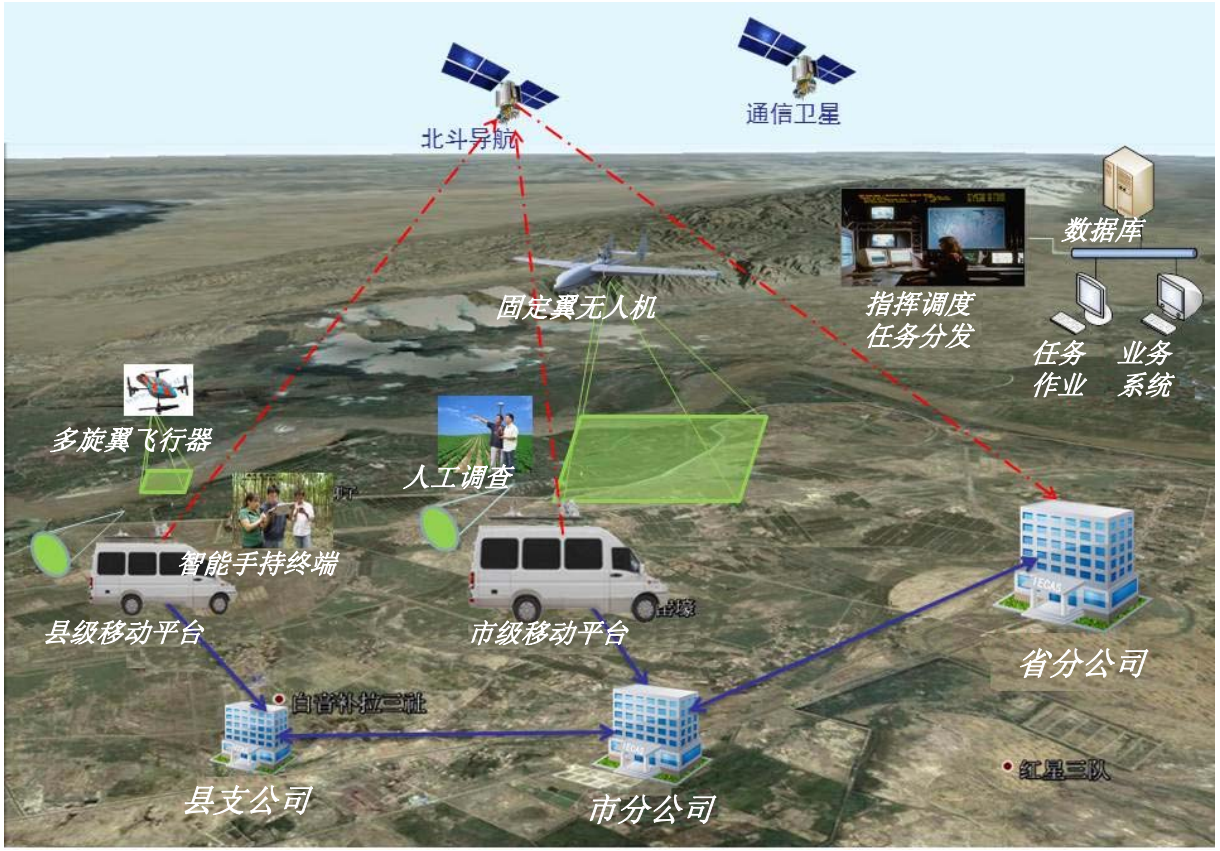
Integrated Agricultural Insurance Model Based on RS

卫星、**无人机**和**地面调查**相结合的“**天空地**”一体化农业保险**精确承保**和**快速理赔**综合服务模式

New agricultural insurance model based on integration of **Satellite RS**, UAV(unmanned aerial vehicle) RS and **Ground Investigation**.

- 多源遥感数据 Multi-Source RS Data
- 精确承保产品 Precise Underwriting Products
- 快速理赔产品 Rapid Claims Settlement Products
- 专题产品生产平台 Producing Platform
- 现场移动查勘平台 Mobile Survey Platform
- 综合信息服务平台 Information Service Platform



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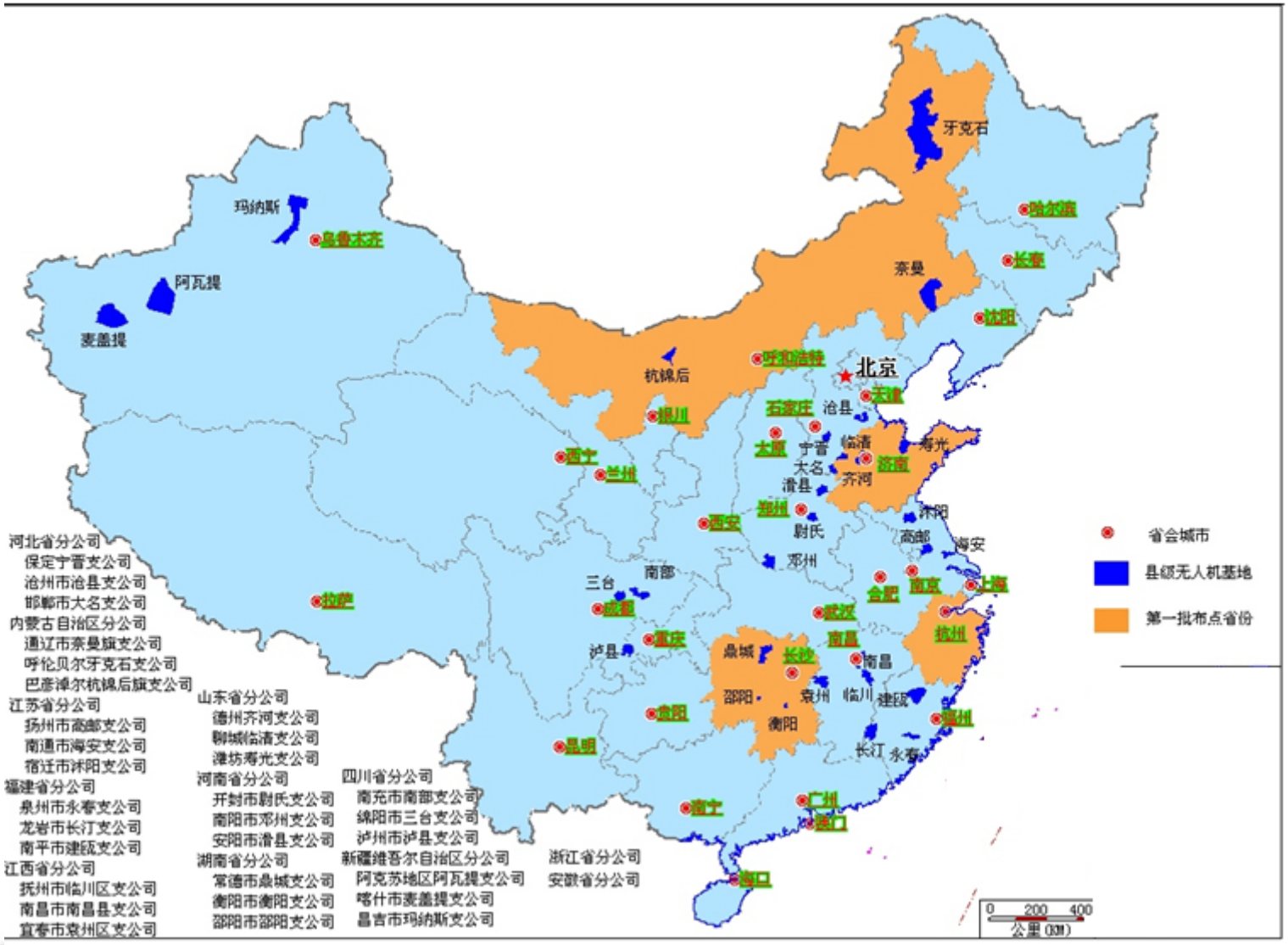
Unmanned Aerial Vehicle Bases



中国人保财险卫星及无人机遥感应用情况
Application of Satellite RS and UAV RS in PICC P & C

项目 Category	数量 Number	说明 Indication
应用区域 Application Area	13省（区） 13 Provinces	海南、河北、广东、江苏、内蒙古、辽宁、山东、四川、大连、山西、吉林、宁波、广西 Hunan, Hebei, Guangdong, Jiangsu, Inner Mongolia, Liaoning, Shandong, Sichuan, Dalian, Shanxi, Jilin, Ningbo, Guangxi
农险标的 Agricultural Insurance Object	10种 9 kinds	玉米、水稻、小麦等粮食作物；橡胶林、葵花、大豆、甘蔗、油菜等经济作物；森林、蔬菜大棚 popcorn, rice, wheat; rubber forest, sunflower, soybean, sugar cane, canola; forest, vegetable greenhouse
灾害类型 Disaster Type	8种 8 kinds	台风、暴风、暴雨、洪水、地震、雹灾、火灾、干旱 typhoon, storm, rain, flood, earthquake, hailstorm, fire, drought

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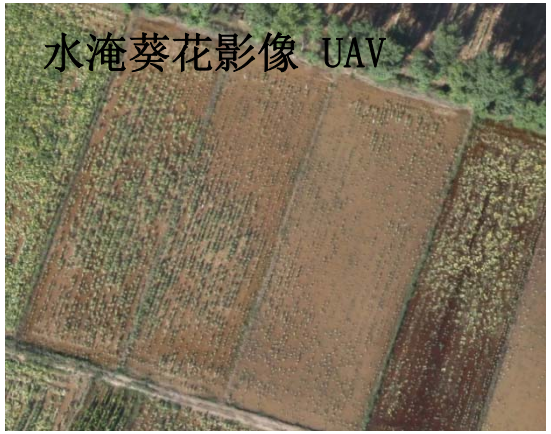
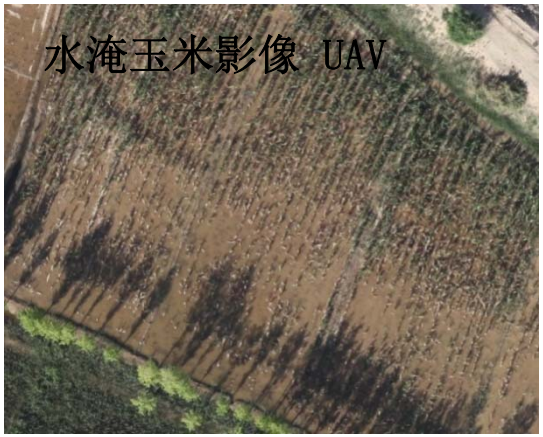
Bayannur Rainform and Flood Disaster Assessment based RS

2012年6月25-28日：1954年以来最大的暴雨洪涝灾害



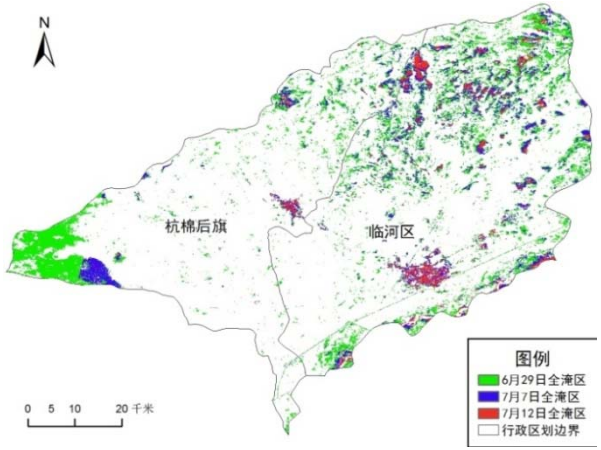


巴彦淖尔市农作物受灾面积48.5万公顷

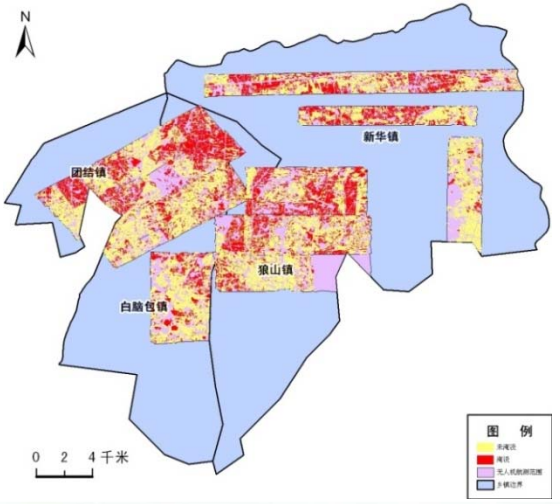
Affected area of crops :0.485 million hectare

天空地一体化评估

卫星遥感评估 Satellite



无人机遥感评估 UAV



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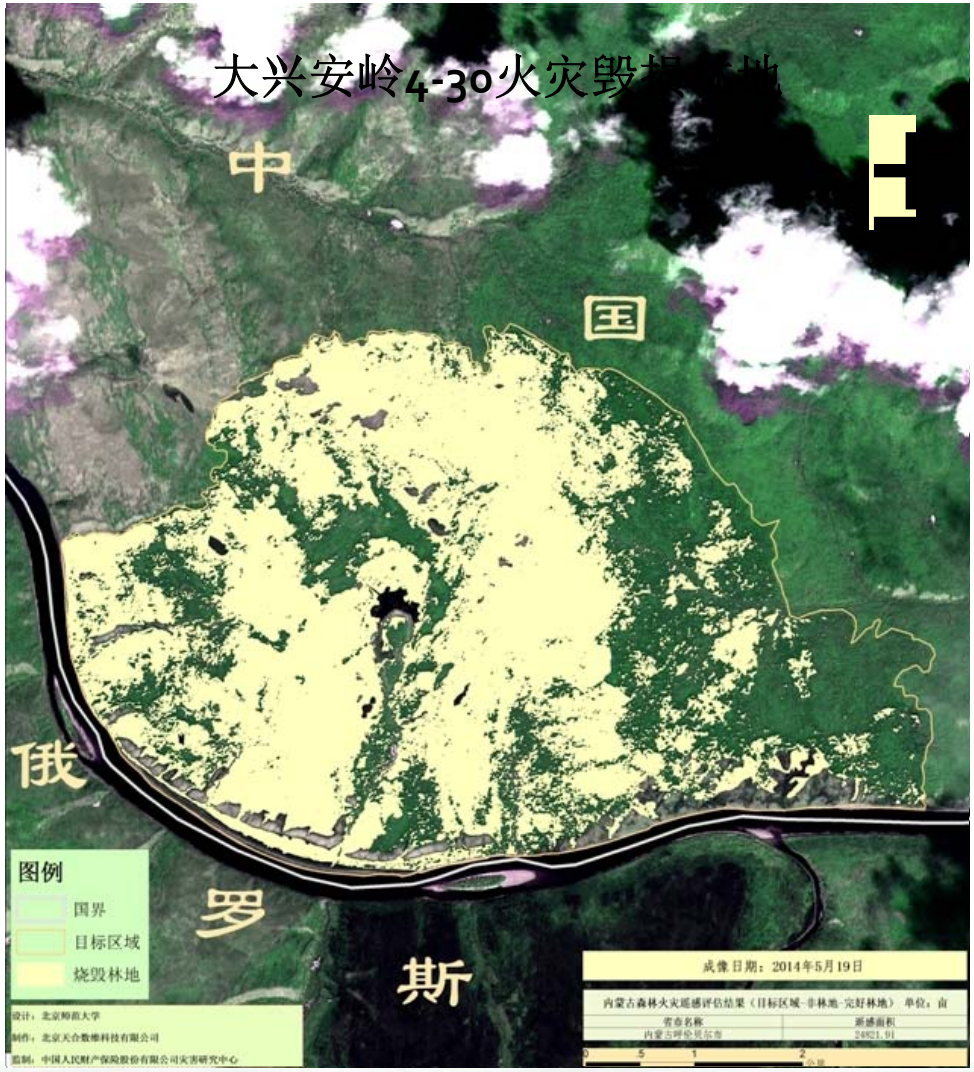
Forest Fire Loss Assessment in Great Khingan

- 4-30内蒙古大兴安岭火灾
  Forest fire occurred in Great Khingan on late April
- 人力查勘困难
  Ground investigation is difficult
- 利用高分一号（4月19日）和资源3号（5月19日）评估了灾前灾后森林面积和过火面积，给出了损失区间
  Forest fire loss was assessed based on RS Data of GF-1 and ZY-3



Efficiency

推动农业保险模式转变，提升风险管控能力

Promoting Agricultural Insurance Model Transformation, Increasing Risk Management and Control Ability

- 农业保险承保管理由目录台账式向空间信息化转变
- 理赔定损由地面查勘向“天空地”一体化转变
- 理赔调度由粗放调度向精确调度转变

提升服务三农（农业、农村、农民）能力，惠及亿万农户

Improving Service Ability of Agriculture, Rural Areas and Farmers, Benefiting More Farmers

发挥社会管理职能，维护灾区社会稳定

Playing a part in social management, Maintaining Disaster Area Stability

- 四川雅安大地震中，中国人保财险第一时间调动无人机抵达重灾区开展航拍，并共享给民政部国家减灾中心，为快速理赔服务和政府救灾救助提供了第一手数据，有助于灾后灾区稳定。

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P2. Disaster Risk Information Analysis and Decision Support System

(1) 承保决策支持模块
Underwriting Decision Support

特色1：基于地理信息整合内外部数据

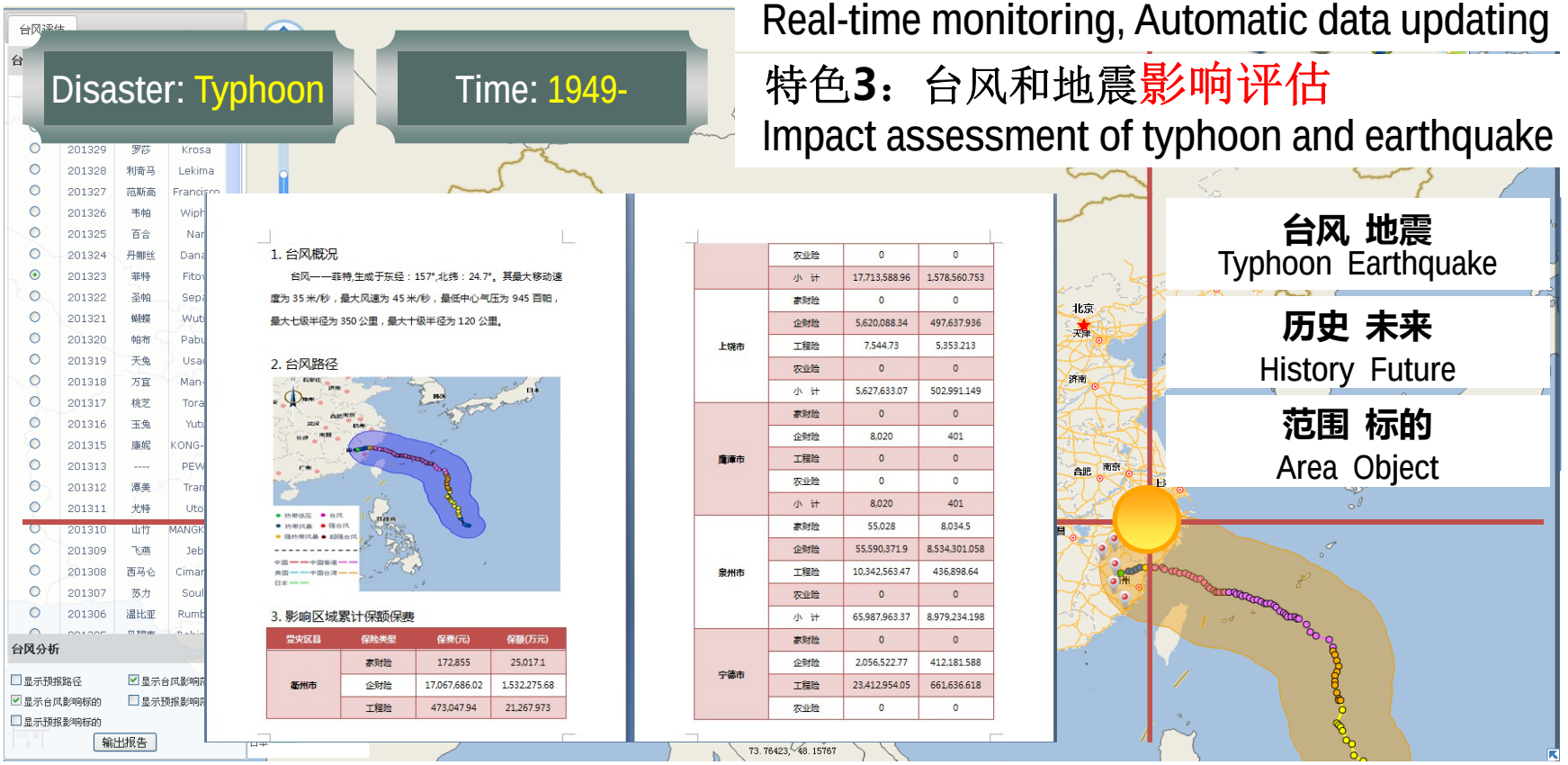
Integrated internal and external data based GIS

特色2：实时监测灾害 自动更新数据

Real-time monitoring, Automatic data updating

特色3：台风和地震影响评估

Impact assessment of typhoon and earthquake



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Prevention

台风来临前转移保险财产

Property Transportation before Typhoon

将车辆停放到提前确定的高地停车场

Car Parked in Planned Higher Parking Lot

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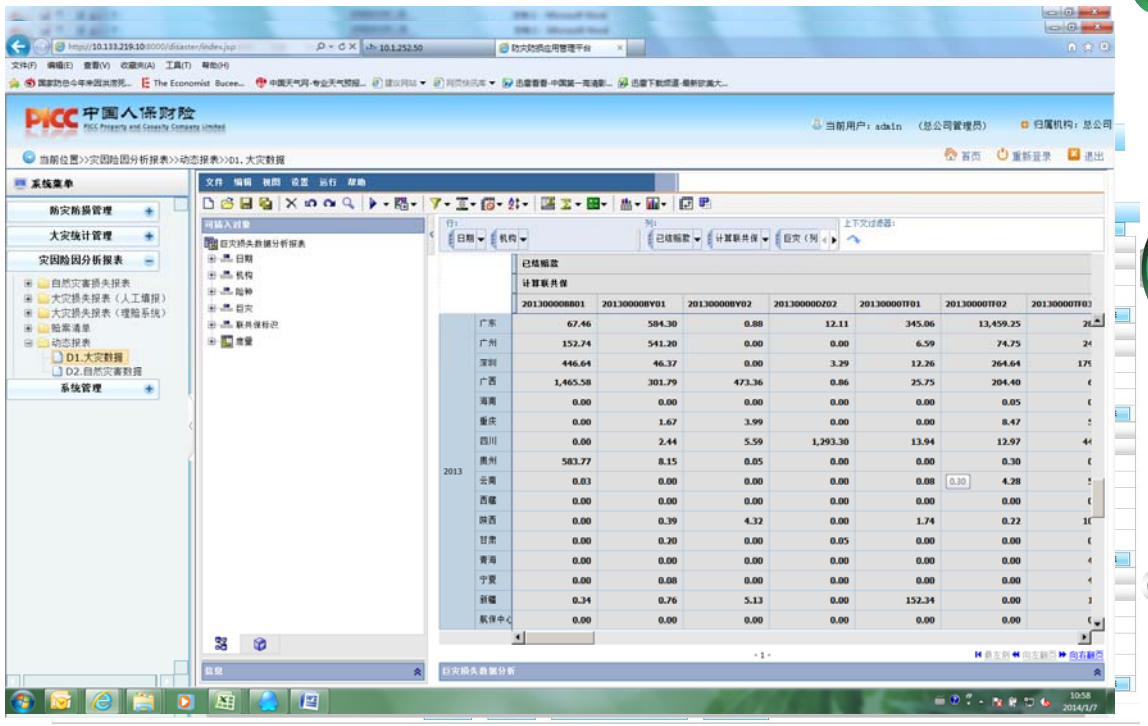
P2. Disaster Risk Information Analysis and Decision Support System

(2)防灾防损应用管理模块
Loss Prevention Management



特点1：客户服务趋于个性化、差异化和系统化

Client service: Personalized, Differentiated and Systematic

特点2：大灾统计管理由人工统计到系统上报

Disaster loss statistics: from offline to online

特点3：数据挖掘分析更注重灾因险因维度

Data mining: focusing on both direct and indirect disaster cause of loss

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P2. Disaster Risk Information Analysis and Decision Support System

3、灾害风险网络知识网
Disaster Risk Knowledge Network

功能1：风险评估 Risk Assessment

功能2：风险咨询 Risk Consulting

功能3：风险研究 Risk Research

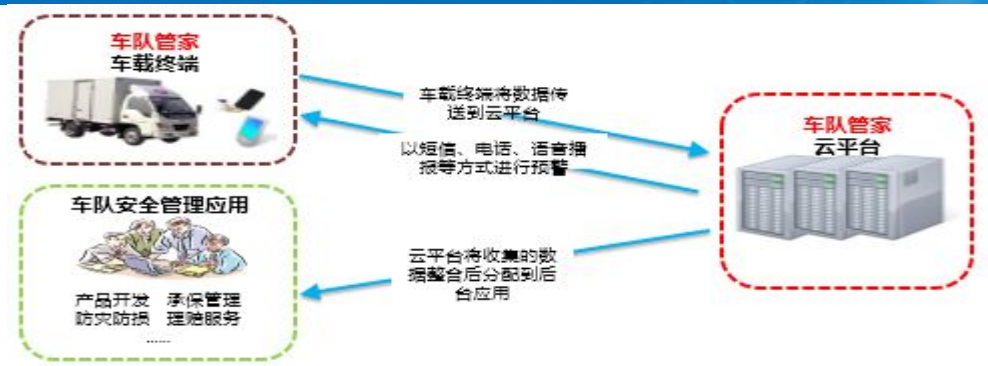
功能4：风险新闻 Risk News

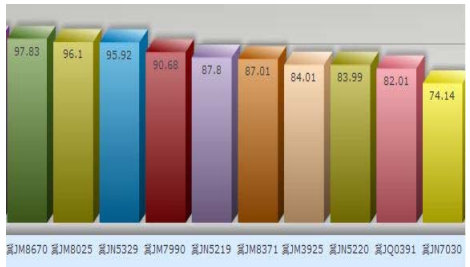
功能5：风险教育 Risk Education

P3. Internet of Things

(1)车联网 Internet of Vehicle

- **应用领域** Application
  - 车队安全管理
    Motorcade Safety Management
  - 私家车驾驶行为分析
    Private Car Drivers' Behavior Analysis
  - **应用目标** Object
  - 实时监控 Real Time Monitoring
  - 轨迹回放 Track Playback
  - 报警预警 Early Warning
  - 驾驶分析 Driving Analysis
  - 数据分析体系 Data Analysis
  - 软硬件技术规范
    Hardware & Software Specifications





(2)动物耳标 Animal Ear Tag

■耳标是动物标识之一，加施于牲畜耳部，承载牲畜个体信息
Ear tag is attached on animals' ear loading animals' information.

■耳标类型：二维码耳标和电子耳标两种
Type: Two-dimensional Code and Electronic ear tags

■耳标构成：主标和辅标
Structure: main and assist ear tags

■农业保险应用 Application in Agricultural insurance

■承保标的识别
Insured Object Identification

■疫情防疫监控
Epidemic Prevention Monitoring

■出险快速理赔
Rapid Claim Settlement

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P4. Safety Technology

- 在车辆保险方面，致力于提升汽车安全水平
  Automobile insurance: dedicated to improve car safety.
- 与中国汽车技术研究中心合作建设中国人保财险汽车安全碰撞试验室
  Found car collision safety lab cooperated with China Automotive Technology & Research Center
- 汽车安全性、交通事故分析、汽车产业标准等研究
- Research on vehicle safety, traffic accident analysis, car industry regulation
- 在财产险方面，为客户提供全面风险管理方案
  Property insurance: offering Enterprise Risk Management program for clients
- 与中科大火灾科学国家重点实验室(合肥科大立安安全技术股份有限公司）、中国仓储协会、泛华公估等单位合作
  Collaboration with State Key Laboratory of Fire Science (University of Science & Technology of China), China Association of Warehouses and Storage, Global China Insurance Co. and so on.

谢谢！

Thanks!

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