International Workshop on
Combating Desertification and Land Degradation

土地退化零增长的监测和评估
——在东北亚的实现途径
Operationalizing Zero Net Land Degradation in North-east Asia

王锋 Feng WANG
Qi LU, Yiming FENG, Xiaoming CAO, Feng YAN
Institute of Desertification Studies, Chinese Academy of Forestry

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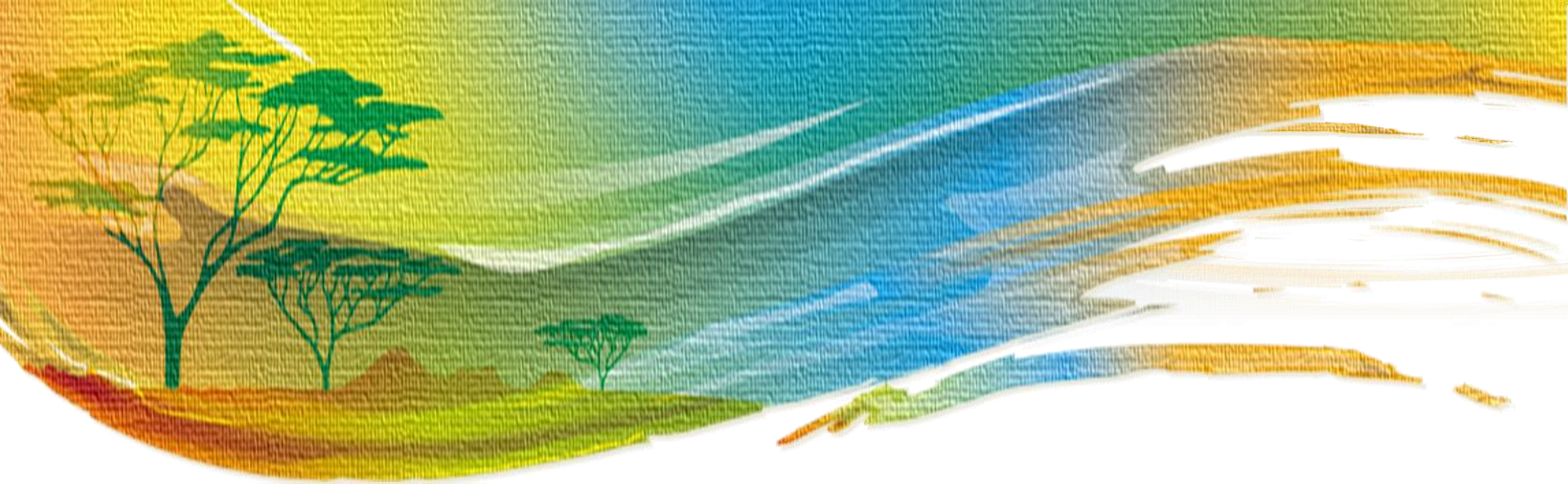

1 土地退化零增长的起源、概念和挑战

Zero Net Land Degradation(ZNLD) : Origin, Definition and Challenges

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“The Future We Want” --- UN Conference on Sustainable Development (Rio+20, 2012)

- to strive for a land-degradation neutral world
- to reaffirm their resolve under the UNCCD to take coordinated action nationally, regionally and internationally
- to monitor, globally, land degradation and restore degraded lands in arid, semi-arid and dry sub-humid areas

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How to achieve this goal

- reducing the rate of land degradation
- offsetting newly occurring degradation by restoring the productivity of currently degraded lands

Zero Net Land Degradation Challenges

- 挑战一：确定空间范围 Scoping-spatial scale and domain
  - An individual farm, an administrative region, a biome or a geopolitical region
- 挑战二：退化土地的基准
  - 起始点base point
  - 起始阶段 base period
- 挑战三：定量土地退化、荒漠化面积和程度
  - 选择指标 selection of indicators for land degradation
  - 制图 Mapping degraded land

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2 回答：挑战一，土地退化零增长的空间范围

——东北亚的范围和气候特点

Answer: Challenges 1, Scope and climatic Characteristic of Northeast Asia

Scope of Northeast Asia

- China
- Democratic People's Republic of Korea
- Japan
- Mongolia
- Republic of Korea
- Russia

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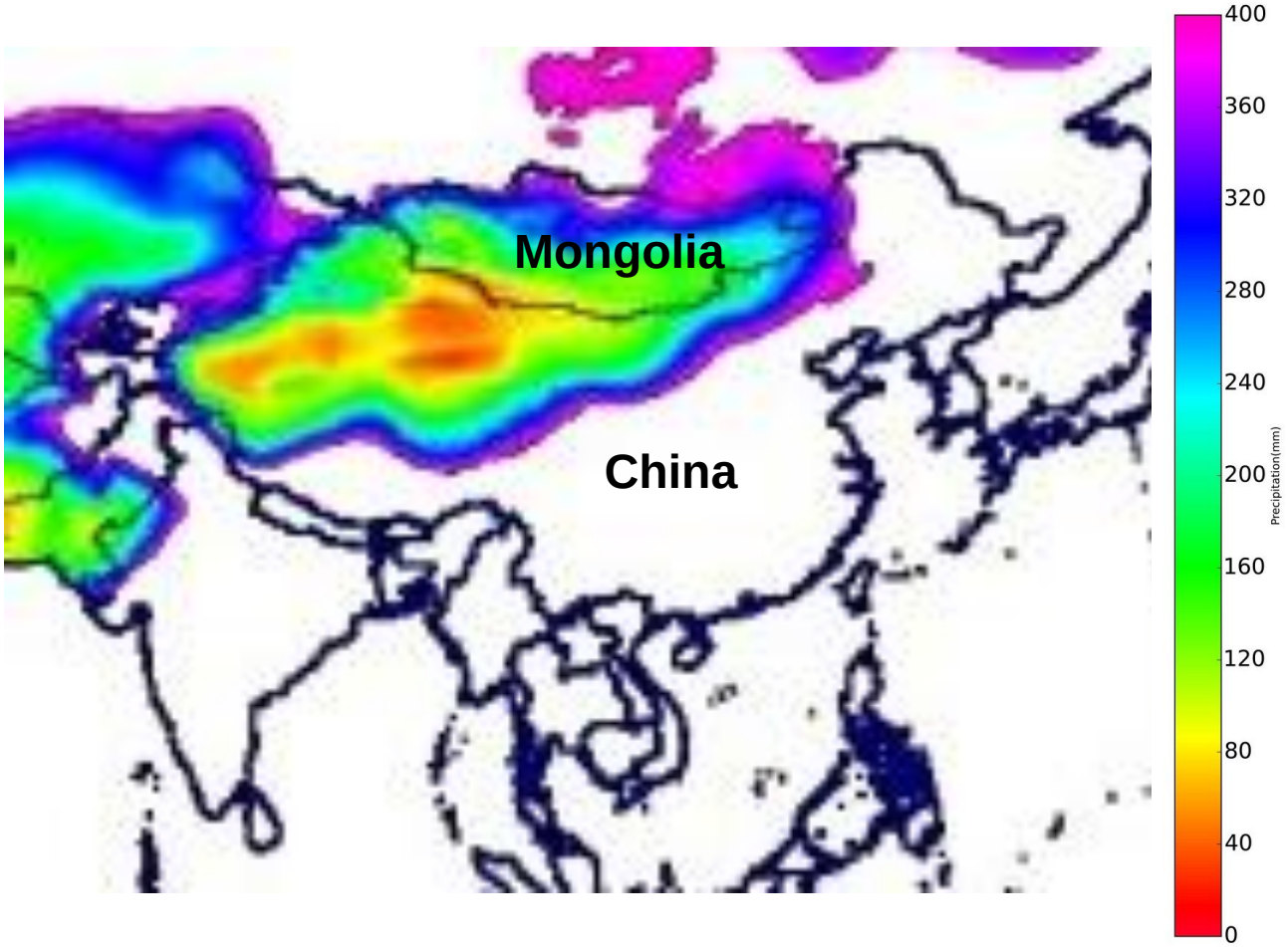
Northeast Asia region with Multiyear Average Precipictation under 400 mm



Low precipitation area of Northeast Asia:

- China
- Mongolia

空间范围 Scoping-spatial scale and domain

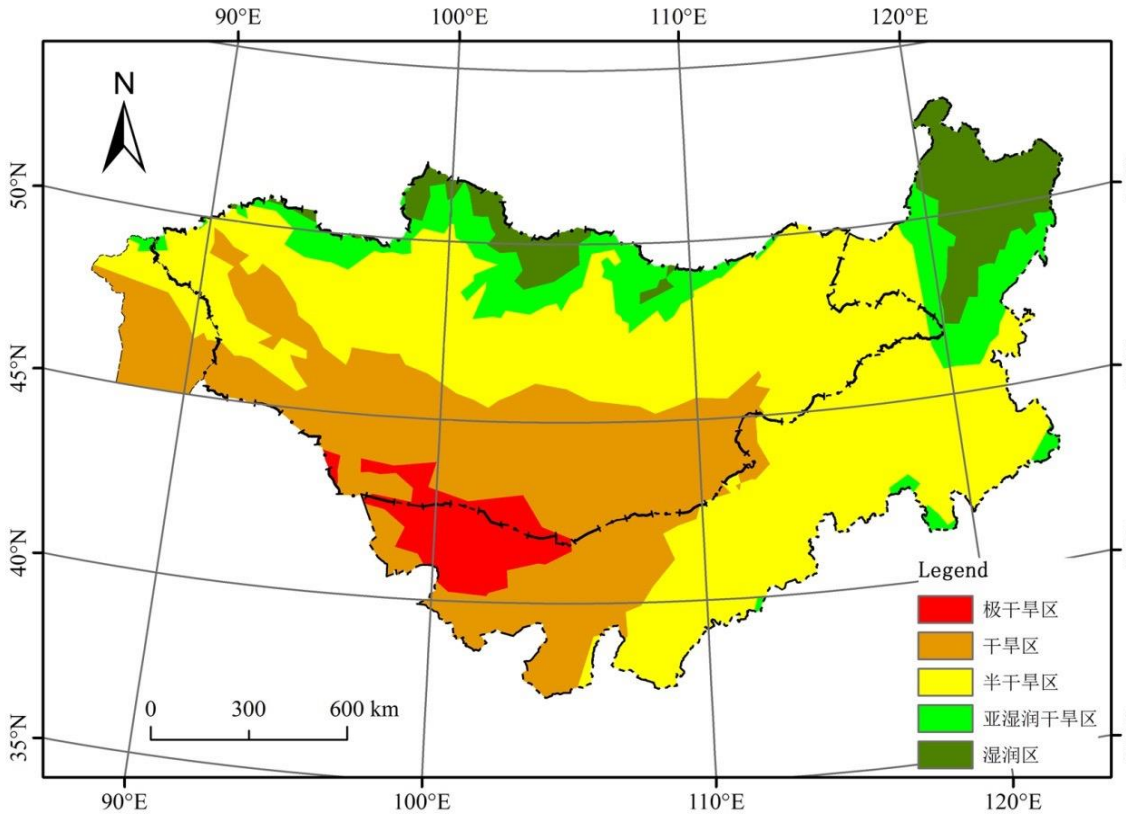
- UNCCD focused on degraded land in dry land
  - Occurred in arid, semi-arid and dry sub-humid area

    (Thornthwaite Index: 0.05~ 0.65)

- Measure Unit——nation
  - China
  - Mongolia

Climate zone	Thornthwaite index
Extreamly arid	<0.05
Arid	0.05-0.20
Semi-arid	0.21-0.50
Dry sub-humid	0.51-0.65
Humid	>0.65

Climate zone of Mongolia plateau



Climate zone	Area (10^4km^2)	Percentage (%)
Extremely arid area	13.1	4.7
Arid area	85.0	30.1
Semi-arid area	136.0	48.2
Dry sub-humid area	26.9	9.5
Humid area	21.1	7.5
Total	282.2	100

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3、回答：挑战二，对比时间基准

3. Answer: Challenges 2 what baseline is regarded as starting point?

土地退化、荒漠化面积程度的对比原点
The baseline of area and level of degraded land

- 起始点 Starting point
  - 2012？
  - 单年 single year
- 基准时期 baseline period
  - 5 years—— (2006-2011)China monitoring, research
  - 10 years
  - 30 years——too long

4、回答：挑战三, 定量土地退化、荒漠化面积和程度

Answer: Chanllege3, Quantify the area and level of degraded land

退化或恢复土地的指标

Indices of degraded/recovered land

- 土地利用/土地覆盖变化(Land-Use and Land-Cover)
  - 一级分类标准 first-level classification
- 植被盖度(Vegetation Coverage)
  - 二级分类标准 second-level classification
- 归一化植被指数（ NDVI ）
  - 二级分类标准 second-level classification
- 生物生产力持续下降/上升(NPP)(persistent reduction of biological productivity)
  - 速度指标 degraded/recover rate

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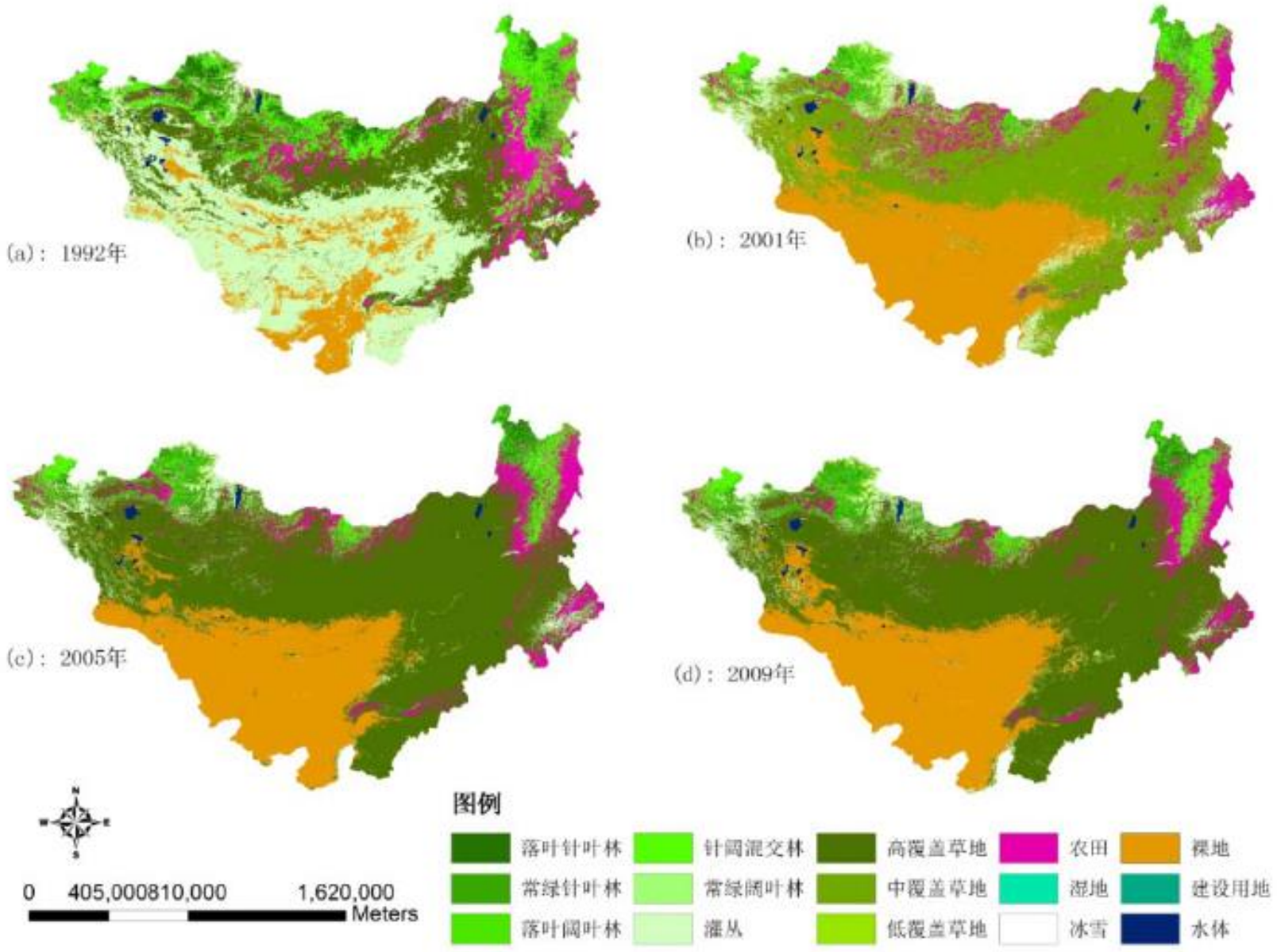
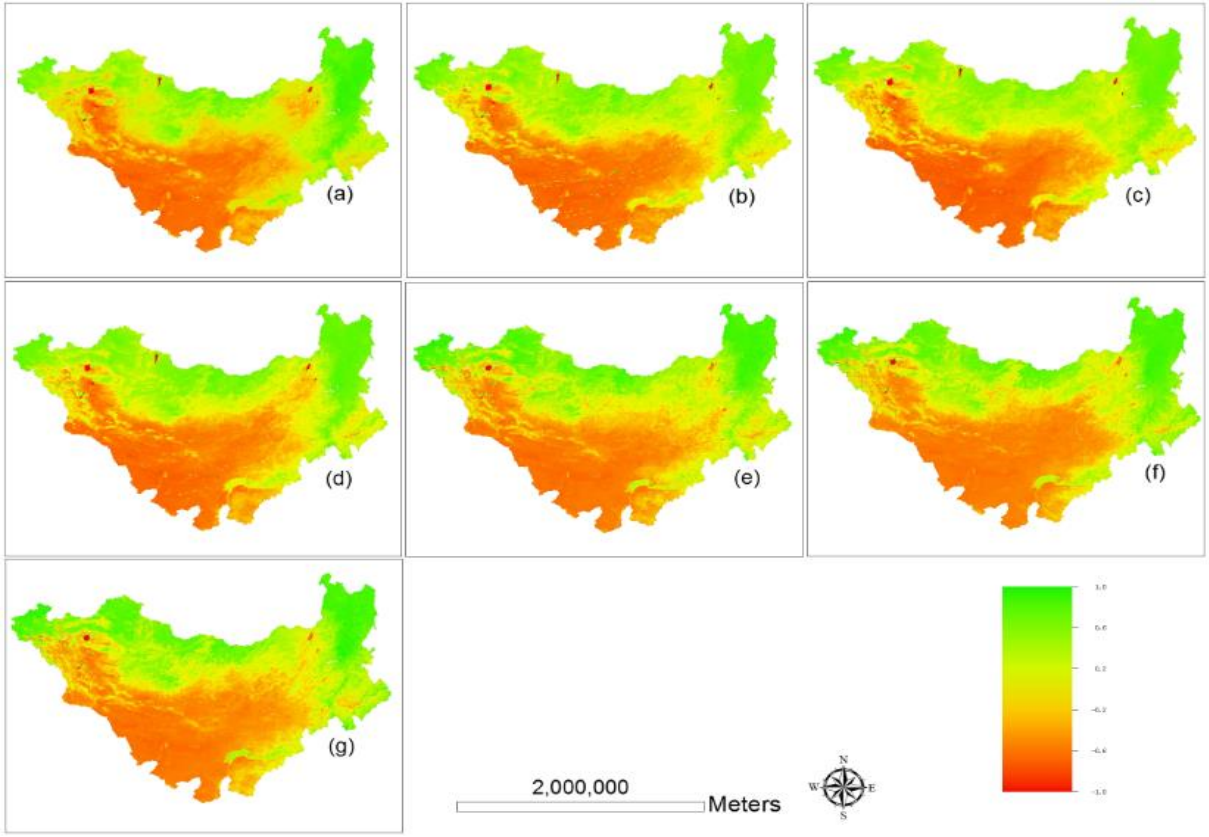
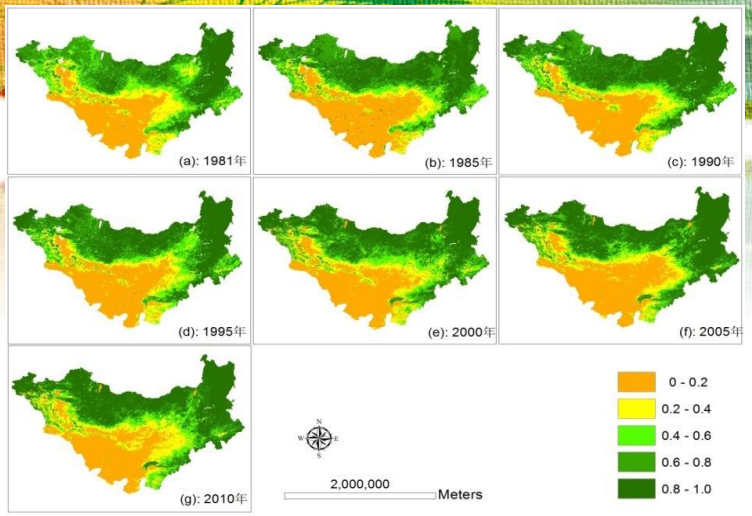
蒙古高原土地利用/土地覆被（1992-2009）
The LUCC of the Mongolia Plateau



归一化植被指数(NDVI)

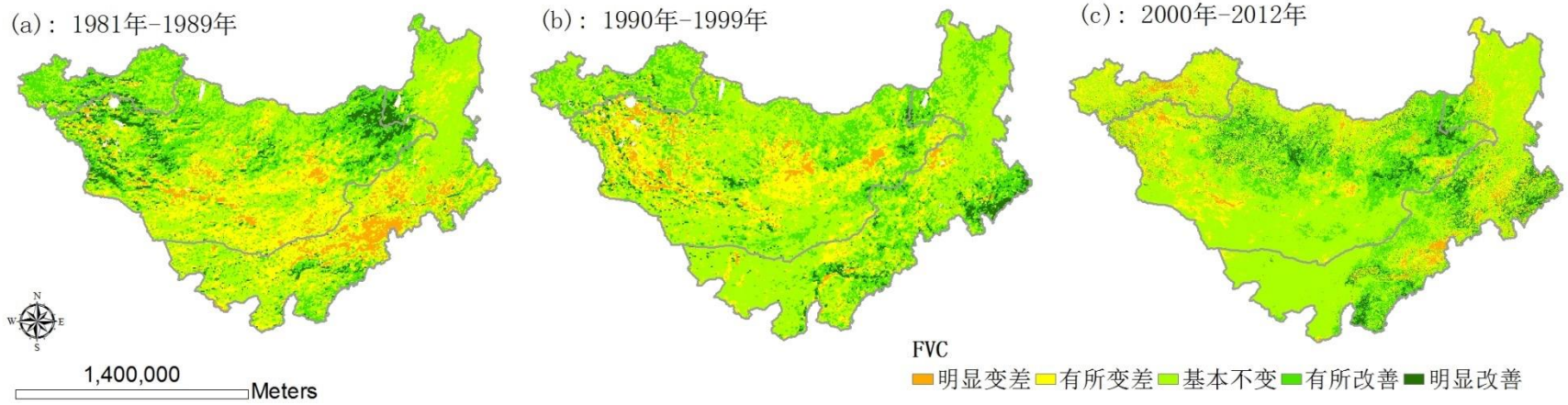


1981年-2012年蒙古高原生长季最大NDVI分布图(a: 1981年; b: 1985年; c: 1990年; d: 1995年; e: 2000年; f: 2005年; g:2010年)



1981年-2012年蒙古高原年FVC分布图(a: 1981年; b: 1985年; c: 1990年; d: 1995年; e: 2000年; f: 2005年; g:2010年)

1981年-1989年，地表植被覆盖明显变差的地区位于蒙古国中部、南部草原和荒漠区以及内蒙古自治区的中部地区。1990年-1999年，蒙古国中部、南部草原和荒漠区地表植被覆盖仍为变差的趋势，而内蒙古自治区中部地区的部分区域地表植被覆盖呈改善的趋势，同时，内蒙古自治区东部农田区在1990年-1999年和2000年-2012年呈明显改善趋势，而在1981年-1989年略微降低。在1990年-1999年以及2000年-2012年，蒙古国西部草原区地表植被覆盖明显减小，说明该区过度放牧现象严重。



1981年-2012年蒙古高原FVC趋势分布图

Methology

局部建立示范区

Establishing new pilot projects at the local community or landscape scales, and projects at the regional level

- 测试、监测土地退化或恢复效果

局部经验通过联合国系统扩展到全球

Seeking recognition and support for achieving ZNLD at the global scale through the United Nations system

- 资金、技术的全球协助
- 在UNCCD形成土地零退化的工作规范

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建议Suggestions

- UNCCD
- UNESCAP
- China/Japan/Korea Government

Support to start the project of monitoring and assessing the Zero Net Land Degradation in North-east Asia as soon as possible!

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谢谢 Thanks!

内蒙古松山区关家营双塔山京津风沙源项目区
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