



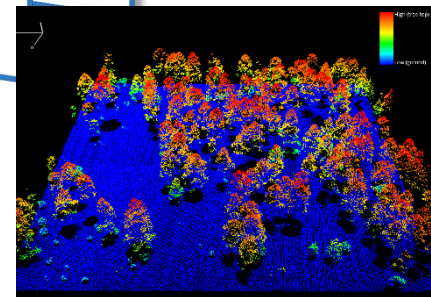
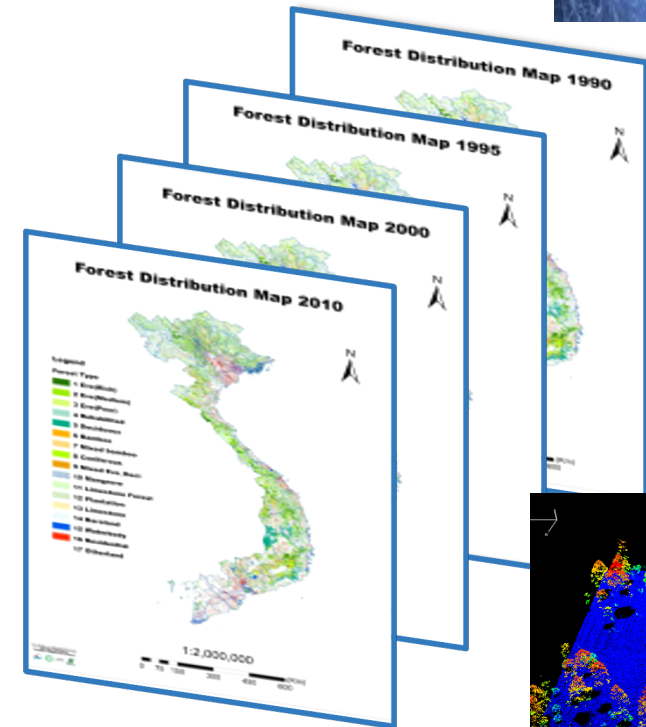
# Forest Technologies Application in Vietnam

Vu Tan Phuong

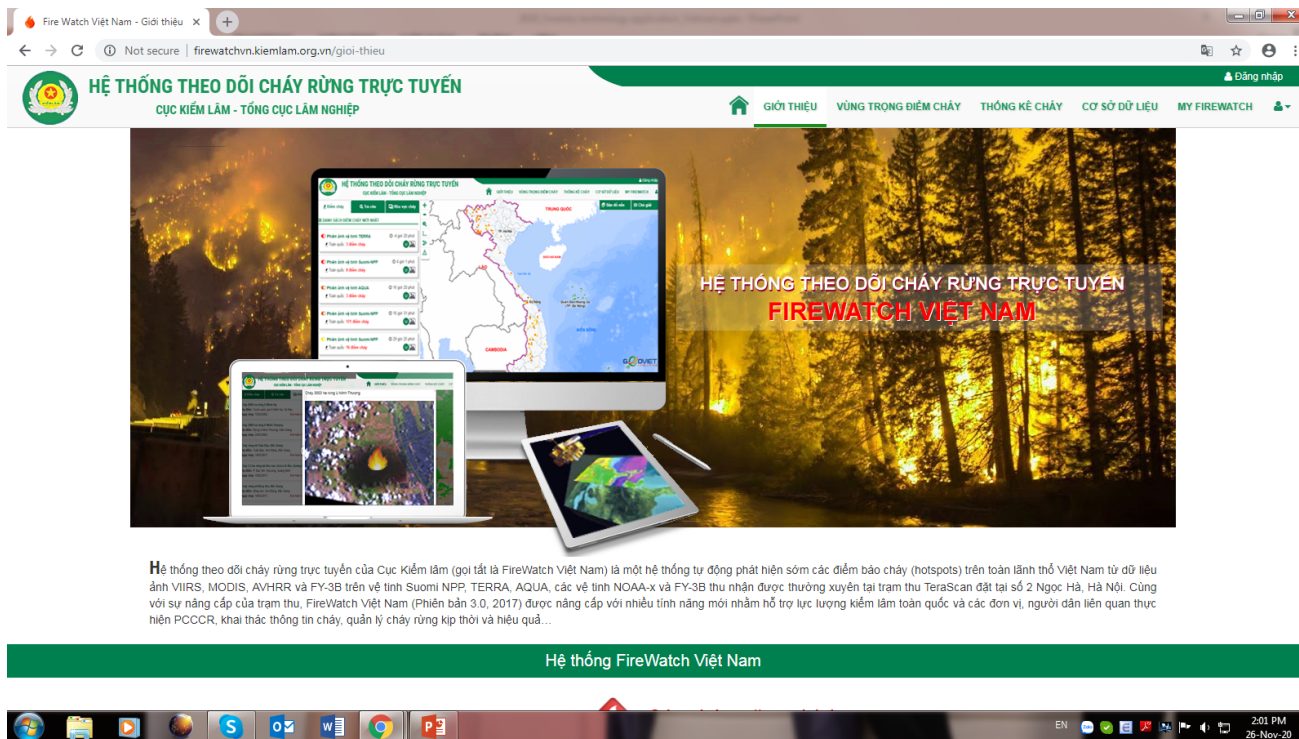
Vietnam Academy of Forest Sciences

# Forest inventories and monitoring

- Remote sensing application for national forest inventories since 1990
  - Forest cover mapping
  - Forest cover monitoring
  - Forestry planning
- Lidar application in forest wood stock and biomass estimates is under studies



# Vietnam fire-watch system



- Managed by Forest Protection Department
- Using remote sensing and climatic information
- Information on real-time hotspot on forest fires to forest owners and managers
- Include warnings on forest fire in daily weather forecast
- Online maps showing fire risks
- Database on historical forest fires



# Forest fire risks

FireWatch Việt Nam - Bản đồ trực tuyến

Not secure | firewatchvn.kiemlam.org.vn/ban-do-trong-diem

**HỆ THỐNG THEO DÕI CHÁY RỪNG TRỰC TUYẾN**  
CỤC KIỂM LÂM - TỔNG CỤC LÂM NGHIỆP

Đăng nhập



















GIỚI THIỆU | **VÙNG TRỌNG ĐIỂM CHÁY** | THỐNG KÊ CHÁY | CƠ SỞ DỮ LIỆU | MY FIREWATCH

**Trọng điểm cháy** | Nguy cơ cháy

**DANH SÁCH PHÂN VÙNG NGUY CƠ CHÁY TOÀN QUỐC**

11/2020 | Tìm | Xem

**Toàn quốc: 194 vùng nguy cơ cháy (cấp IV, V)**

#	Tỉnh/TP	Số huyện	SDC	Xem
1	Điện Biên	21	1171	 
2	Sơn La	17	460	 
3	Đắk Lắk	13	435	 
4	An Giang	14	341	 
5	Đồng Nai	14	315	 
6	Bình Thuận	11	290	 
7	Long An	15	281	 
8	Lai Châu	11	247	 
9	Kiên Giang	13	245	 

117.719, 12.195

**TRUNG QUỐC**

**LÀO**

**CAMBODIA**

**ĐẢO HẢI NAM**

**BIỂN ĐÔNG**

**PHILIPPINES**

TP. Hà Nội

TP. Đà Nẵng

Quần Đảo Hoàng Sa (TP. Đà Nẵng)

Quần Đảo Trường Sa (Tỉnh Khánh Hòa)

Vịnh Bắc Bộ

Vịnh Thái Lan

an Thới

Bản đồ nền

Chủ giải

Trạm khí tượng

Bản đồ nền địa lý

Bản đồ Rừng

Bản đồ địa hình

Bản đồ ảnh SPOT

EN

1:56 PM 26-Nov-20



# Bio-technology

- **Tree breeding and varieties development using genetic modification; molecular markers and polyploidy**
  - Improved productivity and quality
  - Disease and drought resistance
- **Bio-products using microbial biotechnology**
  - Forest protection (pest & disease; fire prevention by decomposing fire material)
  - Wood preservation
  - Fertilizers
- **Mass-propagation of improved varieties by tissue culture, somatic embryogenesis**
- **Studies on gene isolation, DNA barcode and nanotechnology application for selected tree species**



# Wood Processing

- **About 4,500 processing facilities, but limited application of technologies**
- **Small application and/or under studies:**
  - Computer Numerical Control (CNC) – Design and processing
  - Wood drying – solar energy
  - Wood modification (thermal, microwave, plasma) – improvement of appearance, durability, water resistance
  - Artificial Intelligence (AI) – Wood identification and plant species classification



# Future direction

Ministry of Agriculture and Rural Development issued a Decision (2017) to promote application of high-technology in forestry sector:

- **Forest development:** gene technologies for tree breeding and varieties development; seedlings production; forest intensification (fertilizers, pesticide, machine-based etc.)
- **Forest management:** remote sensing for forest monitoring, forest disease management; forest fire risks; bio-technology for forest protection; gene and DNA for identification and classification; natural disaster warnings
- **Wood processing:** automation; wood modification; wood preservation; supporting materials production etc.



# Thank you

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