Wildfire Risk Assessment at MCI WEST
Marine Corps Camp Pendleton

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GIS for Wildland Fire Management
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Task 1: Fuels Mapping
Task 2: Wildfire Risk Assessment
Task 3: Fire Danger Rating Calculator
Task 4: Final Report
Task 5: Annual Briefings
Camp Pendleton Marines Corps Base
Task 1: Fuels Mapping
Fuels Mapping Components

- Evaluation of existing fuels data
- Image acquisition & image processing
- Fuels survey field plots
- Final fuels mapping
- Phenology analysis
- Fuels updating process
- Dynamic fuel moistures analysis
Fuels Mapping Process

IMAGERY SELECTION AND ACQUISITION
- High Resolution Imagery
- Satellite Imagery

GEOMETRY DEFINITION
- Image Processing Technique (OBIA)
- Draft Object Polygons

FIELDWORK PLANNING
- Clustering
- Define field plots

FIELDWORK CONDUCTION
- Fieldwork

STATISTICAL CLASSIFICATION AND ACCURACY ASSESSMENT
- Classification algorithm
- Accuracy Assessment
- Fuels Automatic Classification

EXPERT CRITERIA REVIEW
- Expert analysis
- Manual editing

STATIC FUEL MAP (Polygon Dataset)

Iterative Process
Multi-year imagery analysis
Decision Tree Analysis & Image Processing
Extensive Field Surveys
Fuels Mapping Outputs
Fuels Phenology Modeling

Dynamic/Penologic analysis: FMC based on relative values (percentiles)

- Points of pure FMC
- Imagery collection: 2000-2014
- Calculation Date: MODIS
- Homogeneous moisture areas

(Vegetation indexes calculation)
Raw list
(Fires evaluation and elimination)
Historic List

Vegetation indexes calculation
Percentile calculation
FMC calculation
FMCg & FMCw per zone

Historic List Generation
Task 2: Risk Assessment

Figure provided by Joe Scott, Pyrologix
Risk Assessment Components

- Fire Behavior Analysis
- Primary Risk Metrics
- HVRA - Values-at-Risk Analysis
- Utility Wildfire Containment Conflict Model
- Infrastructure Threat Model
- Fire Risk Management Analysis Model
Next Steps

- Risk assessment model design
- Risk assessment model development
- Risk assessment implementation
- Fire Danger Rating software module
- Final methods report
- Final presentations
More Information

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