

Project Title		ARCFIRE: INTEGRATED GEO-PLATFORM FOR WILDLAND AND FOREST FIRE SIMULATION, MANAGEMENT AND IMPACT ASSESSMENT						
	Country	Contract value (€)	% carried out by Epsilon	No of staff provided	Client	Origin of funding	Date (start/end)	Consortium Members
	Greece, Cyprus, Italy, Portugal, Spain	1 000 000 00	85%	15	European Commission	European Commission	1999 2002	EPSILON International SA (GR), EPSILON Italia srl (IT), EPSILON Cyprus Ltd (CY), ADAI (PT), ATESE SA (GR), NAGREF (GR), Group4 (GR),
Description of the project						Services provided		
ArcFIRE is a modular and scalable GIS-based platform designed to support the entire life-cycle of forest and wildland fire management. It delivers situational awareness, early warning, crisis simulation, post-disaster impact assessment, and knowledge dissemination tools for Civil Protection and Disaster Risk Management (DRM) authorities. By integrating geospatial technologies, EO data, meteorological models, fire dynamics simulation, and advanced routing capabilities, ArcFIRE offers a real-time, decision-support environment for managing forest fire incidents across Europe and beyond. ArcFIRE's key technological features include: A 3-layer architecture (SDI–Server–Client) built on ESRI/.NET, using OGC standards (WMS, WFS, WCS). Modular coverage of the FF Life-Cycle through 4 core components: ○ Awareness Module (risk mapping, early warning, dynamic indices). ○ Emergency Module (fire spread simulation, evacuation routing, fleet monitoring). ○ Impacts Module (post-fire flood/erosion risk, socioeconomic losses). ○ Dissemination Module (pattern analysis, best practices, training). Compatibility with web-based platforms and GeoServers for cross-border interoperability. Deployment in the Seix-Sou Forest (Greece), with real-time cameras, CCC integration, and emergency routing. ArcFIRE+ and its successor FFM Geoportal further extend the platform with additional modules, camera detection, socioeconomic impact quantification, and integration into cloud-based webGIS environments.						System Architecture & Design • Developed ArcFIRE's 3-tier platform using ESRI technologies and OGC-compliant services. • Integrated remote sensing, meteo inputs, and fire behavior modeling tools. Fire Risk Assessment (Awareness Module) • Delivered dynamic fire risk maps based on meteo, terrain, and vegetation indices. • Built early warning and forecasting tools linked to sensors and cameras. Fire Simulation & Response Planning (Emergency Module) • Deployed dynamic fire spread modeling using Rothermel's equations. • Created evacuation and fleet routing algorithms based on isochrone constraints. • Integrated real-time weather data and fire-front evolution tracking. Post-Fire Analysis (Impacts Module) • Assessed fire-related damages to forests, agriculture, infrastructure, and recreation zones. • Modeled post-fire flood and erosion risk based on regional rain/terrain statistics. Training, Dissemination & Capacity Building • Developed virtual simulators, white papers, and webGIS-based training. • Provided manuals, stakeholder workshops, and knowledge-sharing tools. GeoPortal Development • Released the FFM Geoportal under the eENVplus project. • PostgreSQL/PostGIS, GeoServer, WPS and FTP-based.		



