

## Document Control Sheet

1. ISBN or ISSN --	2. Type of Report final Report
3a. Report Title The use of MOMS-2P-Data for Forest Assessment and Updating Forest Management Information in Rhineland-Palatinate	
3b. Title of Publication --	
4a. Author(s) of the Report (Family Name, First Name(s)) Hill, Joachim; Peerenboom, Hans-Gerd; Stöver, Olaf; Atzberger, Clement; Vohland, Michael; Diemer, Claudius; Blümel, Andrea; Egid Harald; Engels, Friedrich	5. End of Project 31.12.1999
	6. Publication Date --
4b. Author(s) of the Publication (Family Name, First Name(s)) --	7. Form of Publication --
	8. Performing Organization(s) (Name, Address) Struktur- und Genehmigungsdirektion Süd Außenstelle Forsteinrichtung Südalle 15 - 19 D - 56068 Koblenz  Universität Trier FB VI - Geowissenschaften / Abteilung Fernerkundung D - 54286 Trier  Struktur- und Genehmigungsdirektion Süd Forstliche Versuchsanstalt Rheinland-Pfalz D - 67705 Trippstadt - Schloss
13. Sponsoring Agency (Name, Address)  <b>Deutsches Zentrum für Luft- und Raumfahrt e.V.</b> Postfach 300 364  D-53183 Bonn	9. Originator's Report No. --
	10. Reference No. 50 EE 9631
	11a. No. of Pages Report 184
	11b. No. of Pages Publication --
	12. No. of References 263
14. No. of Tables 16	15. No. of Figures 85
17. Presented at (Title, Place, Date)	
18. Abstract In order to guarantee the plenty functions of forest ecosystems, relevant and precise information is required for the responsible authorities, owner of the forest, politics and the public. These were gained by several inventories. The suitability of high resolution satellite data and images for forest assessment and updating forest management information had been evaluated in the context of the existing methods and requirements of the Forest Administration of Rhineland-Palatinate. The available data of the several existing information systems of the Forest Administration (database of the forest taxation, geometric data of the forest compartments and forest roads) and the State Survey Authority (digital terrain model, topographic geometric data) were linked with digital remote sensing data by a Forest-GIS (ArcInfo / ArcView based). To integrate relevant satellite data a optimal pre-processing is necessary. Procedures for conscientious geocoding and radiometric correction of atmospheric effects and differences in illumination caused by terrain were further developed and applied. In order to improve the spatial resolution of the multispectral satellite data by using the panchromatic an optimal data fusion technique was developed. This technique was tested by the DPA airborne scanner data gained in the project region Forest District Hillesheim (Kalkeifel) and compared with traditionally used data fusion techniques. The comparison was carried out visually and with the deviation to the original measured data. Special attention was paid to the results in forest areas. The topical assessment, analysis and documentation of insect damage are an essential part of forest monitoring. A case study with geometric and radiometric precise pre-processed Landsat-TM data was carried out by using the well investigated gipsy moth attack in the "Bienwald Forest" (plain of the Upper Rhine Valley). Presently still experimental approaches for a remote sensing based determination of biophysical characteristics (leaf area index, chlorophyll content, needle water content) were made headway in spruce stands of the Forest District Morbach (Hunsrück Mountains), who are heavily affected by forest decline. Likewise in the region Morbach based on multitemporal Landsat-TM data, a multispectral classification for forest stand classes and changes in stand classes was carried out.	
19. Keywords Forest Management, Forest taxation, Forest Monitoring, Inventory, Forest decline, Remote Sensing, Satellite-Data, Satellite Images, Geocoding, Radiometric Correction, Data Fusion, Reflectance Model, GIS, Geographic Information System, Forest Information System	
20. Publisher self - publishing (PDF-file)	21. Price --