

IV. PROTECTING AND MANAGING THE NATURAL RESOURCE BASE OF ECONOMIC AND SOCIAL DEVELOPMENT

Climate change

Action items in the Plan of Implementation (A/CONF.199/20, Resolution 2)		Relevant space applications	Space-related initiatives and programmes that could support the implementation of the action		Web-site(s) for further information
Para.	Action item		Agencies / institution(s) involved	Initiatives/Programmes	
38(d)	Build and enhance scientific and technological capabilities, inter alia, through continuing support to the Intergovernmental Panel on Climate Change for the exchange of scientific data and information especially in developing countries	Earth observation (EO) satellites and satellite communications for exchange of scientific data and information	CNES – CNRS - INSU	ETHER database on atmospheric chemistry	
			CNES – CLS – MétéoFrance – SHOM - CERFACS	AVISO ocean, altimetry and climate database	
			CNES – MétéoFrance – IRD - SHOM	MERCATOR for ocean simulation on the basis of satellite observation; climate forecasting	
			Hungarian Meteorological Service	Research of climate change (NOAA data)	
			ASI	COSMO-SkyMed Programme for ecological monitoring. The Programme is to start operating in 2007 and reach full capacity in 2008.	
			FAO, UNEP	AFRICOVER/Land Cover Mapping; Global Land Cover Network (GLCN) Initiative	www.africover.org
			WMO	World Climate Programme	http://www.wmo.ch/web/wcp/wcp_prog.htm
		SUPARCO, Ministry of Environment	Preparation of inventory of green house gases as per the guidelines available in IPCC. Land /atmosphere studies using MODIS / ENVISAT data.		
	RS and GIS information as decision making tools for policy makers and managers; development of early warning systems for Africa	UNESCO	IOC's "Regional Ocean Observing and Forecasting Systems for Integrated Management of Ocean and Coastal Environment and Natural Disasters in Africa" (ROOFS-AFRICA) project	http://ioc.unesco.org/goos/africa/ROOFS-AFRICA.htm	

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38(g)	Promote the systematic observation of the Earth's atmosphere, land and oceans by improving monitoring stations, increasing the use of satellites and appropriate integration of these observations to produce high-quality data that could be disseminated for the use of all countries, in particular developing countries	EO satellites for systematic observation of Earth's atmosphere, land and oceans	CNES – ESA - CDPI	SMOS for global observation of surface humidity of land and salinity of oceans; climate forecasting	
			CNES – ESA – NASA – LPCE – CETP – MPG	DEMETER for measuring geophysical parameters of the terrestrial ionosphere affecting earthquakes or volcanic activity	
			CNES – NASA	CALIPSO study of radiative impact of clouds and aerosols on understanding of climate systems and global change	
			CNES – ISRO	Megha-Tropiques for study of atmospheric water cycle in the intertropical band	
			CNES – EUMETSAT	Infrared atmospheric sounding interferometer (IASI) instrument of the METOP satellites for spectral analysis of the atmosphere and its chemical composition	
			ESA - Alcatel Space – Ifremer – MétéoFrance - MERCATOR-Ocean - CLS and DNV – NERSC – GTD – Starlab – NCMR – ESYS - SOS	Global Monitoring for Environment and Security (GMES) and Real Time Ocean Services for Environment and Security (ROSES) project	
			CNES-SPOT Image, supported by Belgium and Sweden	SPOT satellites	
			Alcatel Space - ESA	Medium Resolution Imaging Spectrometer (MERIS) instrument on ENVISAT for study of biosphere	
			CNES - NASA	TOPEX-Poseidon for altimetric measurements (ocean circulation etc.)	

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				Jason-1 for global altimetric measurements of the oceans, following TOPEX-Poseidon. General meteorology and climate understanding	
			CNES – ASI – INTA - BNRS	Optical and radar federated Earth observation (ORFEO) system	
			CNES - CNRS supported by WRC and IRMB	PICARD to determine solar forcing influence on Earth climate	
			CNES	PARASOL to determine influence of radiative impact of clouds and aerosols on climate change	
			Hungarian Meteorological Service	Agricultural surface physical parameters research	
			JAXA	Advanced Land Observing Satellite (ALOS)	
			ASI	COSMO-SkyMed Programme for ecological monitoring. The Programme is to start operating in 2007 and reach full capacity in 2008.	
			SUPARCO	SGS and its upgrading for high-quality EO data.	
			ESCAP	Regional Space Applications Programme for Sustainable Development in Asia and the Pacific (RESAP)	http://www.unescap.org/icstd/SPACE/resap/resap_main.asp
			FAO, UNEP	AFRICOVER/Land Cover Mapping: Global Land Cover Network (GLCN) Initiative	www.africover.org
			WMO	World Weather Watch Programme	http://www.wmo.ch/web/www/www.html
				WMO Space Programme	http://www.wmo.ch/hinsman/satsun.html
			UNESCO, WMO, UNEP	IOC - the Global Ocean Observing System (GOOS)	http://ioc.unesco.org/iocweb/index.php

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38(h)	Enhance the implementation of national, regional and international strategies to monitor the Earth's atmosphere, land and oceans, including, as appropriate, strategies for integrated global observations, inter alia, with the cooperation of relevant international organizations, especially the specialized agencies, in cooperation with the United Nations Framework Convention on Climate Change	EO satellites for integrated global observations	Algerian Space Agency, SSTL	Disaster Monitoring Constellation Consortium DMC	
			ESA - EU	GMES European concept	
			Spot Image	SPOT series satellites	
			ASI - CNES - INTA - SNSB	ORFEO project	
			Hungarian Meteorological Service	Agricultural surface physical parameters research	
			ASI	COSMO-SkyMed Programme for ecological monitoring. The Programme is to start operating in 2007 and reach full capacity in 2008.	
			SUPARCO	SRS/GIS applications program in different discipline areas.	
			FAO, UNEP	AFRICOVER/Land Cover Mapping; Global Land Cover Network (GLCN) Initiative	www.africover.org
			WMO	World Weather Watch Programme	http://www.wmo.ch/web/www/www.html
				WMO Space Programme	http://www.wmo.ch/hinsman/satsun.html
UNESCO	IOC's regional programme in the Caribbean (IOCARIBE), Western Pacific (WESTPAC)	http://ioc.unesco.org/iocweb/index.php			
UNESCO, WMO, UNEP	GOOS Regional Alliances, including those for Africa, Black Sea, Mediterranean, Caribbean, Indian ocean, Pacific Islands, North-East and South-East Asia, South-East Pacific	http://ioc.unesco.org/iocweb/index.php			
39(a)	Strengthen capacities of developing countries and countries with economies in transition to measure, reduce and assess the impacts of air pollution, including health impacts, and provide financial and technical support for these activities	RS for measurement of air pollution	CNES - MétéoFrance and French laboratories	PARASOL project to measure the radiative impact of aerosols on Earth	
			ACRI - ST - IPSL - MétéoFrance - LOA - Ministry of Research and New Technologies (France)	Ultraviolet Forecasting Operational Service (UFOS) for exploitation of stratospheric ozone measurements, cloud cover and atmospheric aerosol content, by ENVISAT (MERIS and Global Ozone Monitoring by Occultation of Stars (GOMOS))	

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			ASI	COSMO-SkyMed Programme for ecological monitoring. The Programme is to start operating in 2007 and reach full capacity in 2008.	
			SUPARCO	Air pollution monitoring using ground based equipment is regularly conducted (ESA & ENVISAT Data are helpful in such monitoring).	
			WMO	Atmospheric Research and Environment Programme	http://www.wmo.ch/web/arep/arep-home.html
39(c)	Further support the effective regime for the protection of the ozone layer established in the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol, including its compliance mechanism	EO satellites for monitoring ozone layer and verifying compliance with the Montreal Protocol	French, Belgian and Swedish space agencies and laboratories	Odin atmospheric mission to investigate atmospheric chemistry	
			ASI	COSMO-SkyMed Programme for ecological monitoring. The Programme is to start operating in 2007 and reach full capacity in 2008.	
			SUPARCO, Ministry of Env't.	Monitoring trend of ozone in the Asian region using TOMS / GOME data	
			WMO	Atmospheric Research and Environment Programme	http://www.wmo.ch/web/arep/arep-home.html
				WMO Space Programme	http://www.wmo.ch/hinsman/satsun.html