

## METADATA BULGARIA

<b>Title of working unit:</b>	<b>ZONE K5</b>
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### A: GENERAL INFORMATION

<b>Contractor:</b>	GISAT s.r.o.
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<b>Responsible:</b>	Tomas Soukup
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<b>Contracted:</b>	SatGeo Ltd.
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<b>Phone:</b>	+3592 888 355 869
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<b>Project leader:</b>	Anton Stoimenov
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### 1. IMAGE1975 data used

Landsat MSS provided or other scene(s)				
Satellite & Sensor	Path-	Row	Date (m/d/y)	Remark (e.g. clouds)
Landsat 1 TM	195	030	19/08/1977	Very good quality, no clouds over coastal zone territory.
Landsat 1 TM	195	031	19/08/1977	Very good quality, no clouds over coastal zone territory.

### 2. Topographic maps used (indicate in remark if digital)

Scale	Sheet id	Title/Name	Year of production	Year of last revision	Remark
<b>1:100000</b>	<b>K5-16</b>	Nesebar	1978	1972, 1975	Digital, georeferenced
<b>1:100000</b>	<b>K5-16</b>	Nesebar	1991	1989	Digital, georeferenced
1:25000	K5-16-B-v	Djulino	1980	1979	Digital, georeferenced
1:25000	K5-16-B-g	Biala	1980	1979	Digital, georeferenced
1:25000	K5-16-V-b	Gyuliovitsa	1980	1979	Digital, georeferenced
1:25000	K5-16-V-v	Bata	1980	1974, 1979	Digital, georeferenced
1:25000	K5-16-V-g	Medovo	1980	1979	Digital, georeferenced
1:25000	K5-16-G-a	Rakovskovo	1980	1979	Digital, georeferenced
1:25000	K5-16-G-b	Obzor	1980	1979	Digital, georeferenced
1:25000	K5-16-G-v	k. Slanchev briag	1980	1979	Digital, georeferenced
1:25000	K5-16-G-g	Emona	1980	1979	Digital, georeferenced
<b>1:100000</b>	<b>K5-17</b>	Nesebar	1978	1972, 1975	Digital, georeferenced
<b>1:100000</b>	<b>K5-17</b>	Nos Emine	1991	1989	Digital, georeferenced
1:25000	K5-17-A-v	nos.Sv.Atanas	1980	1979	Digital, georeferenced
1:25000	K5-17-V-a	nos Kochan	1980	1979	Digital, georeferenced
1:25000	K5-17-V-v	nos Emine	1980	1979	Digital, georeferenced
<b>1:100000</b>	<b>K5-25</b>	Karnobat	1978	1975	Digital, georeferenced
<b>1:100000</b>	<b>K5-25</b>	Karnobat	1991	1989	Digital, georeferenced
1:25000	K5-25-B-a	Karanovo	1977	1977	Digital, georeferenced
1:25000	K5-25-B-b	Balgarovo	1977	1977	Digital, georeferenced
1:25000	K5-25-B-v	Ravnec	1977	1977	Digital, georeferenced
1:25000	K5-25-B-g	Kameno	1977	1977	Digital, georeferenced
1:25000	K5-25-G-a	Rusokastro	1977	1977	Digital, georeferenced
1:25000	K5-25-G-b	Cherni vrah	1977	1977	Digital, georeferenced
1:25000	K5-25-G-v	Grudovo	1977	1977	Digital, georeferenced
1:25000	K5-25-G-g	Gabar	1977	1977	Digital, georeferenced
<b>1:100000</b>	<b>K5-26</b>	Burgas	1978	1975	Digital, georeferenced
<b>1:100000</b>	<b>K5-26</b>	Burgas	1991	1989	Digital, georeferenced
1:25000	K5-26-A-a	Rudnik	1977	1977	Digital, georeferenced
1:25000	K5-26-A-b	Kableshevo	1977	1977	Digital, georeferenced
1:25000	K5-26-A-v	Burgas	1977	1977	Digital, georeferenced
1:25000	K5-26-A-g, K5-26-B-v	Pomorie	1977	1977	Digital, georeferenced
1:25000	K5-26-B-a	Nesebar	1977	1977	Digital, georeferenced
1:25000	K5-26-V-a	Burgas-Jug	1977	1977	Digital, georeferenced

1:25000	K5-26-V-b	Chernomorec	1977	1977	Digital, georeferenced
1:25000	K5-26-V-v	Zidarovo	1977	1977	Digital, georeferenced
1:25000	K5-26-V-g	Rosen	1977	1977	Digital, georeferenced
1:25000	K5-26-G-a	Sozopol	1977	1977	Digital, georeferenced
1:25000	K5-26-G-v, K5-26-G-g	Ravadinovo	1977	1977	Digital, georeferenced
<b>1:100000</b>	<b>K5-36,37,46</b>	Michurin	1978	1975	Digital, georeferenced
<b>1:100000</b>	<b>K5-36</b>	Michurin	1991	1989	Digital, georeferenced
1:25000	K5-36-A-b	Yasna poliana	1978	1978	Digital, georeferenced
1:25000	K5-36-A-g	Visitsa	1978	1978	Digital, georeferenced
1:25000	K5-36-B-a	Primorsko	1978	1978	Digital, georeferenced
1:25000	K5-36-B-b	Kiten	1978	1978	Digital, georeferenced
1:25000	K5-36-B-v	Fazanovo	1978	1978	Digital, georeferenced
1:25000	K5-36-B-g	Michurin	1978	1978	Digital, georeferenced
1:25000	K5-36-G-a	Gramatikovo	1978	1978	Digital, georeferenced
1:25000	K5-36-G-b	Kosti	1978	1978	Digital, georeferenced
1:25000	K5-36-G-v	Slivarovo	1978	1978	Digital, georeferenced
1:25000	K5-36-G-g	Karieto	1978	1978	Digital, georeferenced
<b>1:100000</b>	<b>K5-37</b>	Ahtopol	1991	1989	Digital, georeferenced
1:25000	K5-37-A-v	Varvara	1978	1978	Digital, georeferenced
1:25000	K5-37-V-v	Vasilia	1978	1978	Digital, georeferenced
1:25000	K5-37-V-g	Rezovo	1978	1978	Digital, georeferenced

### 3. Other ancillary data used (thematic data, satellite images, aerial photos, city maps, vegetation maps)

Id	Data source/type	Title (if relevant)	Date of production (m/d/y)	Scale (spatial detail)	Remark
KRA_xxxx_1978	BW Aerial photos	6 pcs.	05/1978	1:7 000	Digital, georeferenced
PRI_xxxx_1980	BW Aerial photos	20 pcs.	05/1980	1:12 000 -16 000	Digital, georeferenced
BUR_xxxx_1987	BW Aerial photos	34 pcs.	08/1987	1:16 000	Digital, georeferenced
TSA_1_1994	Sovinformsputnik	Tsarevo	06/1994	1:20 000	Digital orthophoto
Landsat 7 TM	GISAT S.R.O.	181/30	06/10/2001	1:100 000	Digital, orthorectified
Landsat 7 TM	GISAT S.R.O.	181/31	06/23/2000	1:100 000	Digital, orthorectified
BGmaps	Datecs Ltd	BG city maps	1997 / 2002	1:5 000	Digital
Bondev	Paper Copy	Vegetation map of Bulgaria	1991	1:600 000	Digital

### 4. Photointerpreter(s)

Name	Affiliation	Phone	E-mail	Interpretation		
				start (m/d/y)	End (m/d/y)	no. of days
Rumiana Vatzeva	SatGeo	++3592-8709220	rvatzeva@bas.bg	04/23/2003	06/13/2003	35
				07/25/2003	07/31/2003	2

## B: DATA PREPARATION

### 1. Checking and systematic correction of IMAGE90 data (optional)

Landsat TM or any other satellite scenes used (e.g. SPOT)							
Satellite & Sensor	path-	row	Date (m/d/y)	Max. systematic geom. Error (m)	(optional) Checked & corrected (name)	(optional) Date (m/d/y)	(optional) Reference data
Landsat 5 TM	181	030	28/08/1992	< 50 m	Ventzeslav Dimitrov	03/14/2003	
Landsat 5 TM	181	031	10/08/1991	< 50 m	Ventzeslav Dimitrov	03/14/2003	

### 2. Checking and systematic correction of CLC90 data

Corrections	Type of correction	Checked and Corrected by	Date (m/d/y)		Remarks
			Start	end	
Geometrical errors	Systematic correction	Ventzeslav Dimitrov	04/15/2003	04/18/2003	

	Local correction	Rumiana Vatseva	04/23/2003	06/06/2003	Errors > 100 m were corrected.
Thematic errors	Logical coherence*	Rumiana Vatseva	06/05/2002	06/09/2003	Many small polygons were removed. Lot of sleeve polygons less than 100 m was corrected.
	Semantic accuracy** and exhaustiveness***	Rumiana Vatseva	04/23/2003	06/06/2003	Systematic error between 112 – 243, 121 – 112, 131 – 243, 142 – 243, 142 – 331, 142 – 332, 211 – 222, 211 – 242, 221 – 211, 221 – 243, 324 – 321, 411 – 112, 411 – 331 was corrected

\* = respectation of internal rules of CLC (100 m, 25 ha) according to Tech.Guide and Addendum

\*\*= interpretation according to CLC nomenclature;

\*\*\* = details are appropriate

### 3. Verification and acceptance on national level

Date (m/d/y)	Accepted by	Signature	Remark
06/14/2003 07/31/2003	Anton Stoimenov		Some geometric and thematic corrections in 1990 revision DB. Some Change polygons correction. 2 new Change added.

## C: INTERPRETATION OF CHANGES AND CREATION OF CLC1975

### 1. Photo-interpretation and internal quality control

Date of submission (m/d/y)	Control made by	Date of control (m/d/y)	Remark (errors, corrections, etc.)
04/23/2003	Rumiana Vatseva	06/13/2003 07/31/2003	- changes from 131 to 243; from 132 to 211; from 142 to 243; from 142 to 324. - changes from 221 and 222 to 211; from 211 to 221 and 222. - changes from 324 to 311; from 311 to 324.

### 2. Field checking (if carried out)

Date (m/d/y)	Itinerary (main settlements crossed on the working unit)	Problems checked and main conclusions
07/29-30/2003	K - 5 - 16, 17 (Nesebar), K - 5 - 25 (Karnobat), K - 5 - 26 (Burgas), K - 5 - 36, 37, 46 (Michurin) Byala, Obzor, Slanchev bryag, Ravda, Aheloy, Kableshevo, Rudnik, Sarafovo, Pomorie, Burgas, Dolno Ezerovo, Rosen, Chernomorec, Sozopol, Primorsko, Lozenec, Carevo, Ahtopol, Sinemorec, Rezovo.	"Uncertain" polygons were checked: 112,121,123,124,131,132 142,221, 222,324,331,411,512, 521. Local authorities were consulted for 123, 124 and 132

### 3. Border matching with neighbour working units

Working unit /Country	Controlled and corrected by	Date (m/d/y)	Remark
BWU Zone 5	Rumiana Vatseva	06/17/2003	Some small polygons were removed.
BWU Zone 7	Nevena Borisova	06/17/2003	Some small polygons were removed and some polygons were merged.

## D: FINAL TECHNICAL QUALITY CONTROL

### 1. Control of topology, unnecessary boundaries, 25 ha limit, invalid codes and invalid changes

	Date (m/d/y)	Controlled by	Remark
CLC1975	06/20/2003 08/01/2003	Todor Lubenov	

CLC Changes	06/21/2003 08/01/2003	Todor Lubenov	
CLC90	06/22/2003 08/01/2003	Todor Lubenov	

## 2. Verification and acceptance

	Date (m/d/y)	Name	Organization	Remark
National level	06/23/2003 07/31/2003	Anton Stoimenov	SatGeo	Separation 112 – 123.
	07/26/2003	Tomas Soukup	GISAT	missing 13*(port area extention),32* to 31*, interpretation of permanent crops 22* to annual (21*) or vice versa
Integration level	08/26/2003	Erika Orlitová	GISAT	22/31 interpretation error found
	09/01/2003	Tomas Soukup	GISAT	OK

## E: SOFTWARE / HARDWARE

Work phase	Software used	Hardware used
Systematic geometric correction of IMAGE90	-	-
Systematic geometric correction of CLC90	PCI Geomatica 8.2.3	PC: P4/ RAM 512 /HDD 40GB/17"
Topological and thematic corrections of CLC90	PCI Geomatica 8.2.3	PC: P4/ RAM 512 /HDD 40GB/17"
Interpretation of changes	ArcView 3.2	PC: P4/ RAM 1 G /HDD 40GB/17"
Creation of CLC2000	ArcView 3.2	PC: P4/ RAM 1 G /HDD 40GB/17"
Technical quality control	ArcView 3.2	PC: P4/ RAM 1 G /HDD 40GB/17"
Database integration (border matching)	Arc Info 8.3.	PC: P4/ RAM 1 G /HDD 80GB/19"