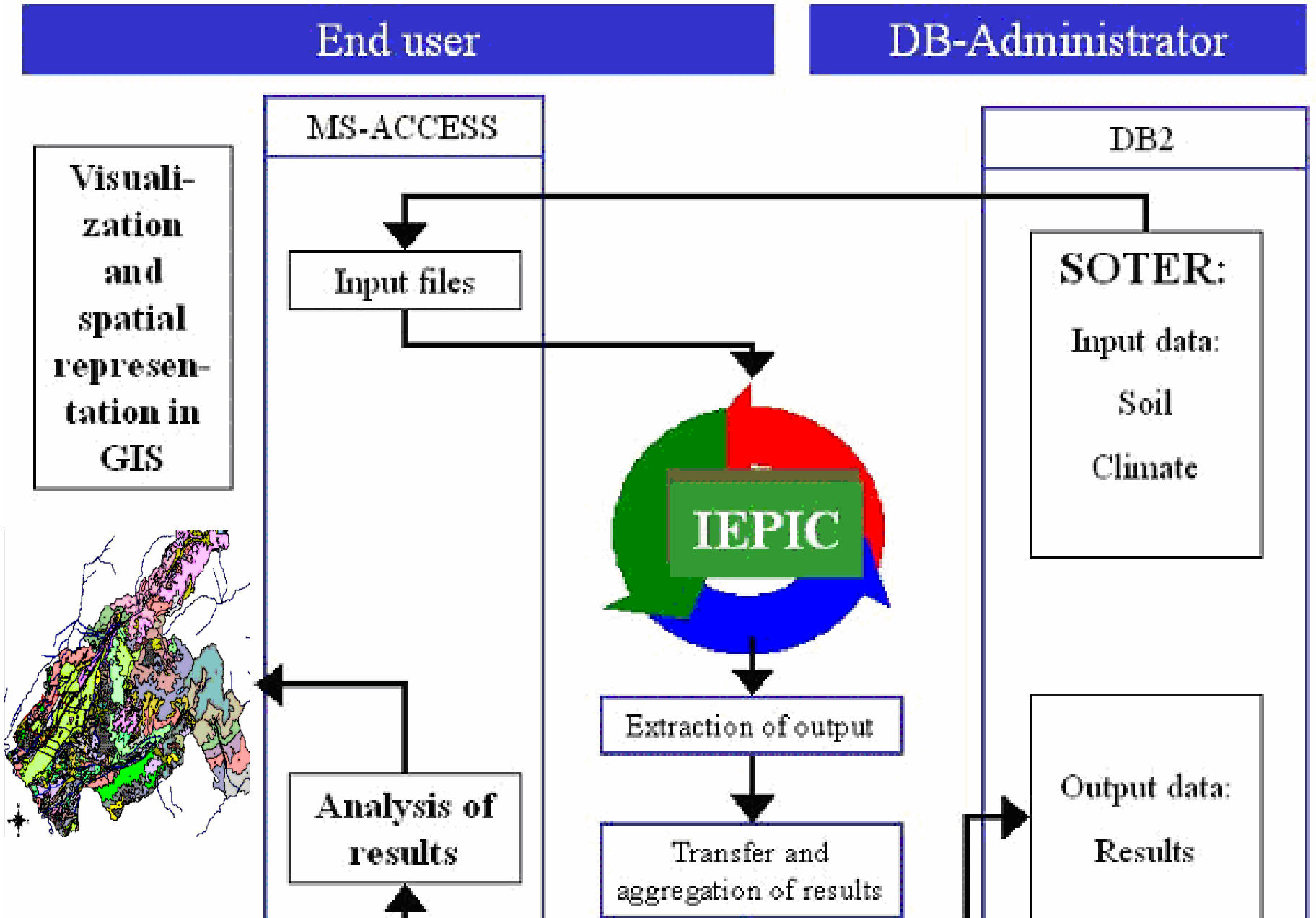
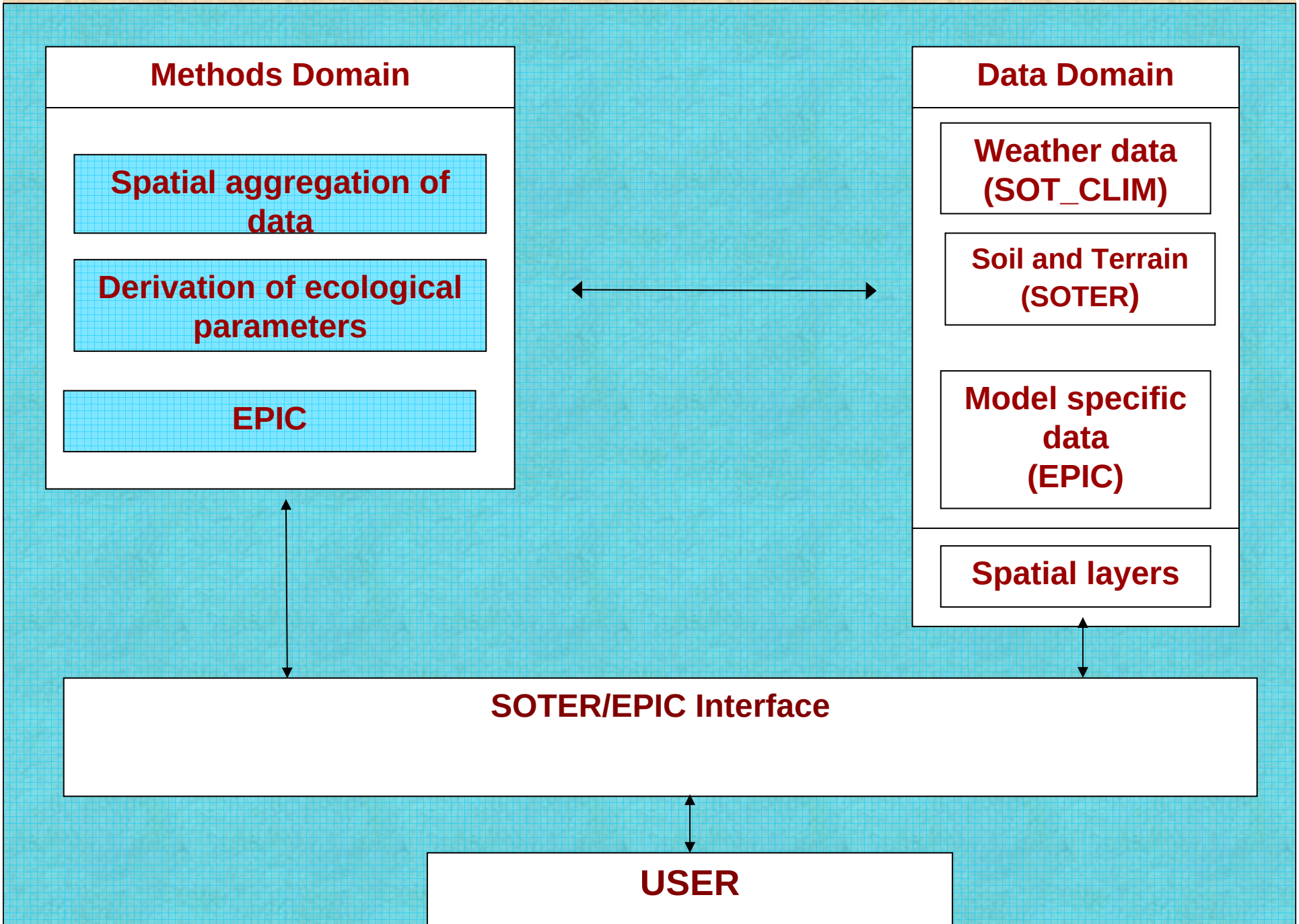
SLISYS-EPIC

GALINA STULINA

of the IEPIC/SOTER interface



SLTSYS Database structure



Climatic characteristics

List of representative climate stations

Station	Latitude	Longetude	Altitude
Tashkent	41.3	69.4	424
Syrdarya	40.8	68.7	265
Pskem	41.9	70.4	1145
Dukant	41.1	70.4	2004
Oygaing	42.2	70.9	2305
Angren	41.01	70.08	1243

RAIN	Niederschlag
TMIN	Minimum temperatur
TMAX	Max. Temperatur
SUNH	Sonnenscheindauer
HUMI	Luftfeuchte
ETP	Potentielle Evapotranspiration
WIND	WIND

Data sets

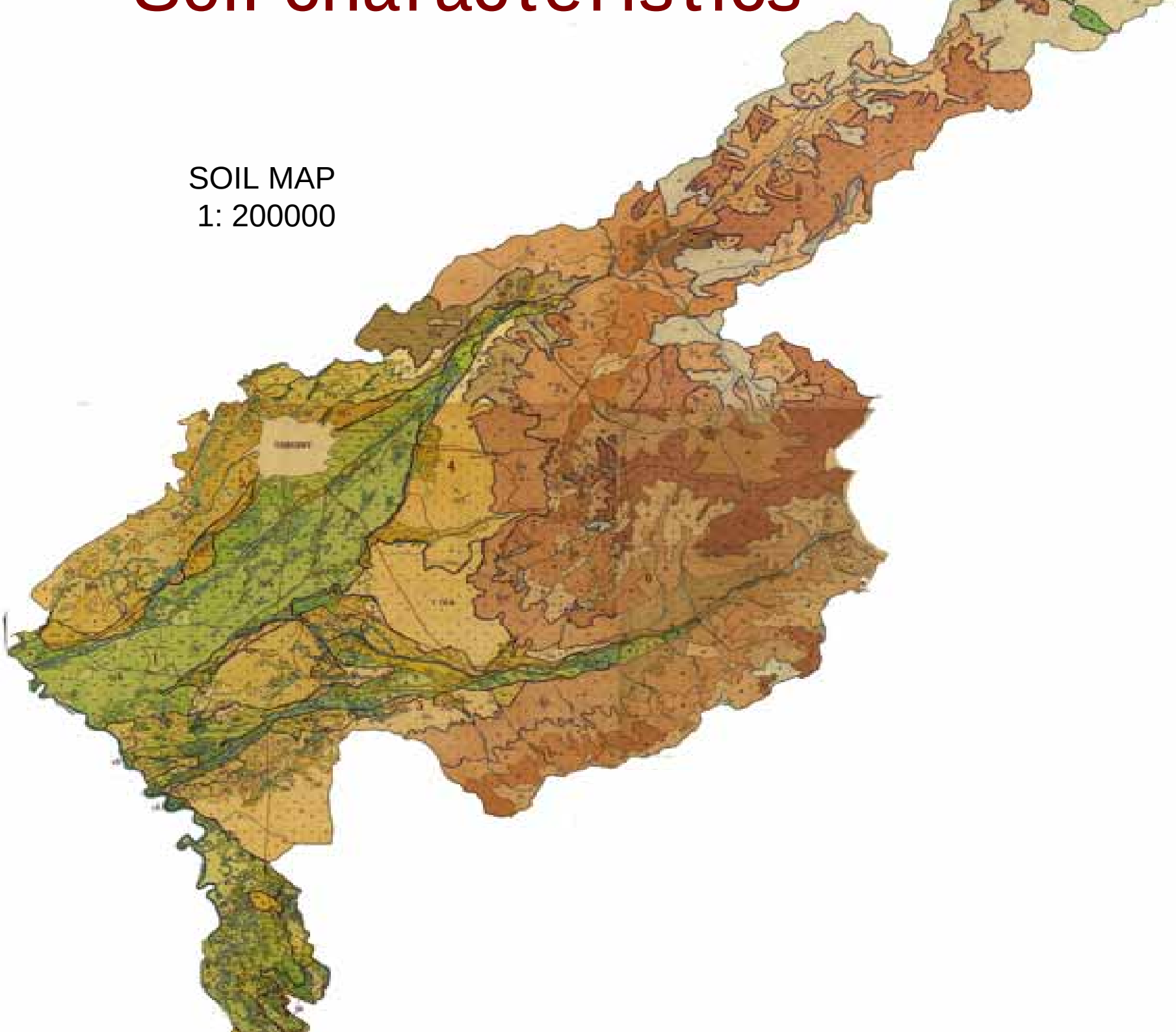
Data_set	Station_id	Data_Kind	Source_Id	First_Year	Last_Year	Years
AGRAIN	Angren	RAIN	Uzbekistan	1980	2004	24
AGRAIN81	Angren	RAIN	Uzbekistan	1980	1981	1
AGRAIN82	Angren	RAIN	Uzbekistan	1981	1982	1
AGRAIN83	Angren	RAIN	Uzbekistan	1982	1983	1
AGRAIN84	Angren	RAIN	Uzbekistan	1983	1984	1
AGRAIN85	Angren	RAIN	Uzbekistan	1984	1985	1
AGRAIN86	Angren	RAIN	Uzbekistan	1985	1986	1

Data

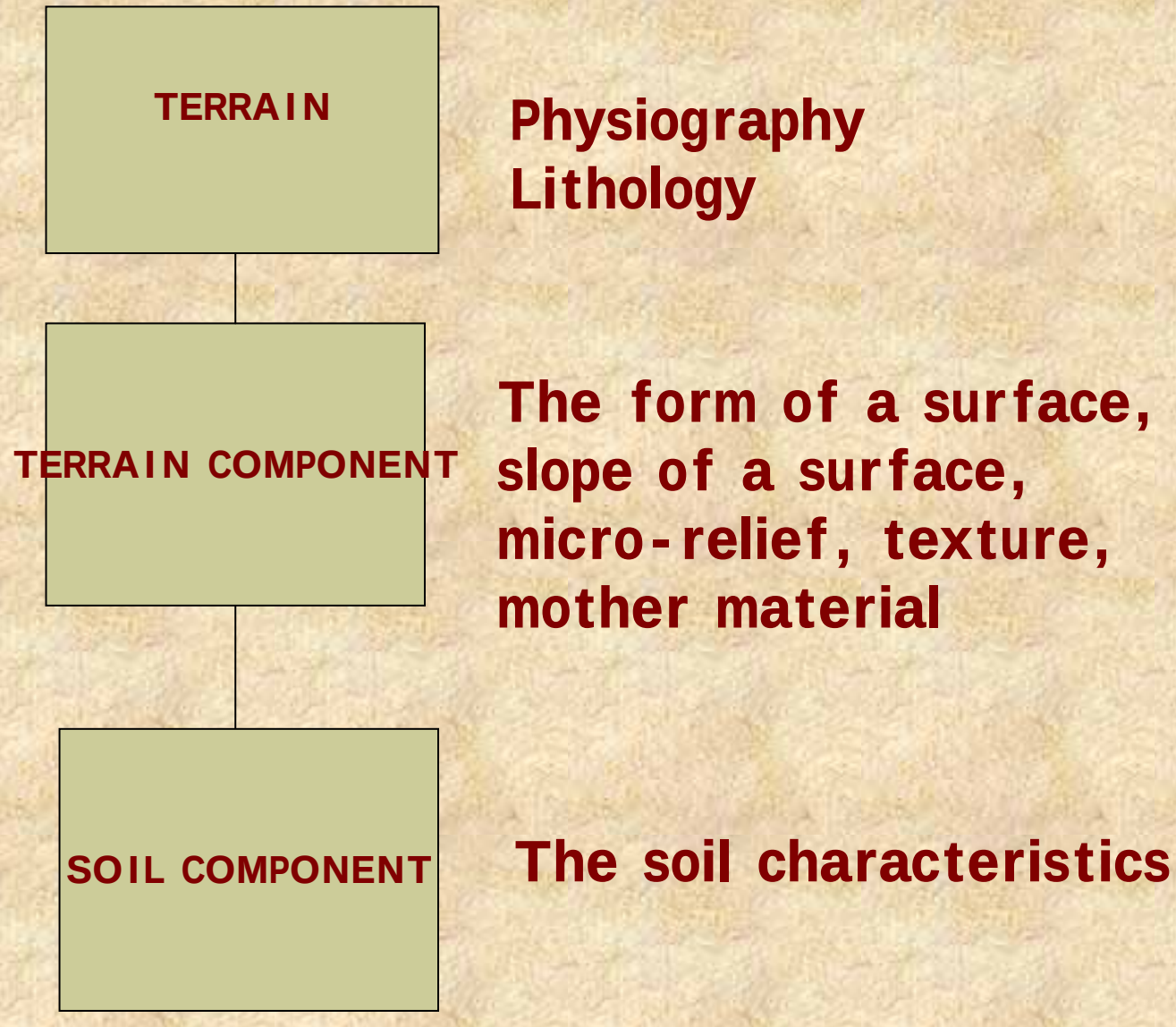
Data_set	Month	Value
AGRAIN80	10	18.5
AGRAIN80	11	14.2
AGRAIN80	12	79.2
AGRAIN80	1	39.2
AGRAIN80	2	114.2
AGRAIN80	3	86.4
AGRAIN80	4	120.9
AGRAIN80	5	52.9
AGRAIN80	6	19.9
AGRAIN80	7	0.0
AGRAIN80	8	6.4
AGRAIN80	9	0.6

Soil characteristics

SOIL MAP
1: 200000



SOTER UNIT


TERRAIN
Physiography
Lithology
TERRAIN COMPONENT
The form of a surface,
slope of a surface,
micro-relief, texture,
mother material
SOIL COMPONENT
The soil characteristics

UZ-BMoL_z	Brown mountain soils deeply leached on skeleton sediments, strongly eroded
UZ-BMoC	Brown mountain soils with carbonates on loess like skeleton sediments, non eroded
UZ-BMoC _y	Brown mountain soils with carbonates on loess like skeleton sediments, slightly eroded
UZ-BMoC_z	Brown mountain soils with carbonates on loess like skeleton sediments, strongly eroded
UZ-BMoT_z	Brown mountain soils typical on loess like skeleton sediments, strongly eroded
UZ-BMoT_y	Brown mountain soils typical on loess like skeleton sediments, slightly eroded
UZ-BMoF_y	Brown mountain-forest soils typical on gravelly sediments, stony,slightly to moderately eroded (S exposition)
UZ-BMoF	Brown mountain-forest soils on loess sediments, non eroded
UZ-SD_2	Dark sierosem, heavy loam on loamy sediments, long-term irrigated
UZ-SD	Dark sierosem, heavy loam on loamy sediments, non- irrigated
UZ-GRAVEL	Gravel and sands
UZ-LBMo	Light-brown high mountain meadow-steppe soils
UZ-MaMeT3	Marsh-meadow soils on loess mixed with gravel, gravel at 0.5-1m, GW level<1m (T3)
UZ-MeMaP	Meadow-peat marsh soil
UZ-MeT1	Meadow soils on alluvial sediments, heavy loam, gravel at 0.3-2m, GW level 1-2m (T1)
UZ-MeT5	Meadow soils on heavy loam, GW level 1-2m (T5)
UZ-MeT3	Meadow soils on loess mixed with gravel, heavy loam, GW level 1-2m (T3)
UZ-MeMo	Meadow-high mountain soils
UZ-MeST5	Meadow-sierozems on loamy sediments intercalated with sands and gristle, GW level 2-2.5m (T5)
UZ-MeST1	Meadow-sierozems soils on alluvial sediments, GW level 2-2.5m (T1)
UZ-ROCK	Rock outcrop
UZ-SmeT3	Sierozem-meadow soils on loess mixed with gravel (T3)
UZ-MaMeT1	Swampy marsh-meadow sierozems on alluvial sediments,GW level<1m,(T1)
UZ-ST5_2	Typical sierosem on loamy loess-like and gristly sediments, long-term irrigated (T5)
UZ-ST5_2z	Typical sierosem on loamy loess-like and gristly sediments, long-term irrigated,mod.-strongly eroded (T5)
UZ-ST5_1	Typical sierosem on loamy loess-like and gristly sediments, newly irrigated (T5)
UZ-ST5	Typical sierosem on loamy loess-like and gristly sediments, non irrigated (T5)
UZ-ST3_2	Typical sierosem on loamy loess-like sediments long-term irrigated (T3)

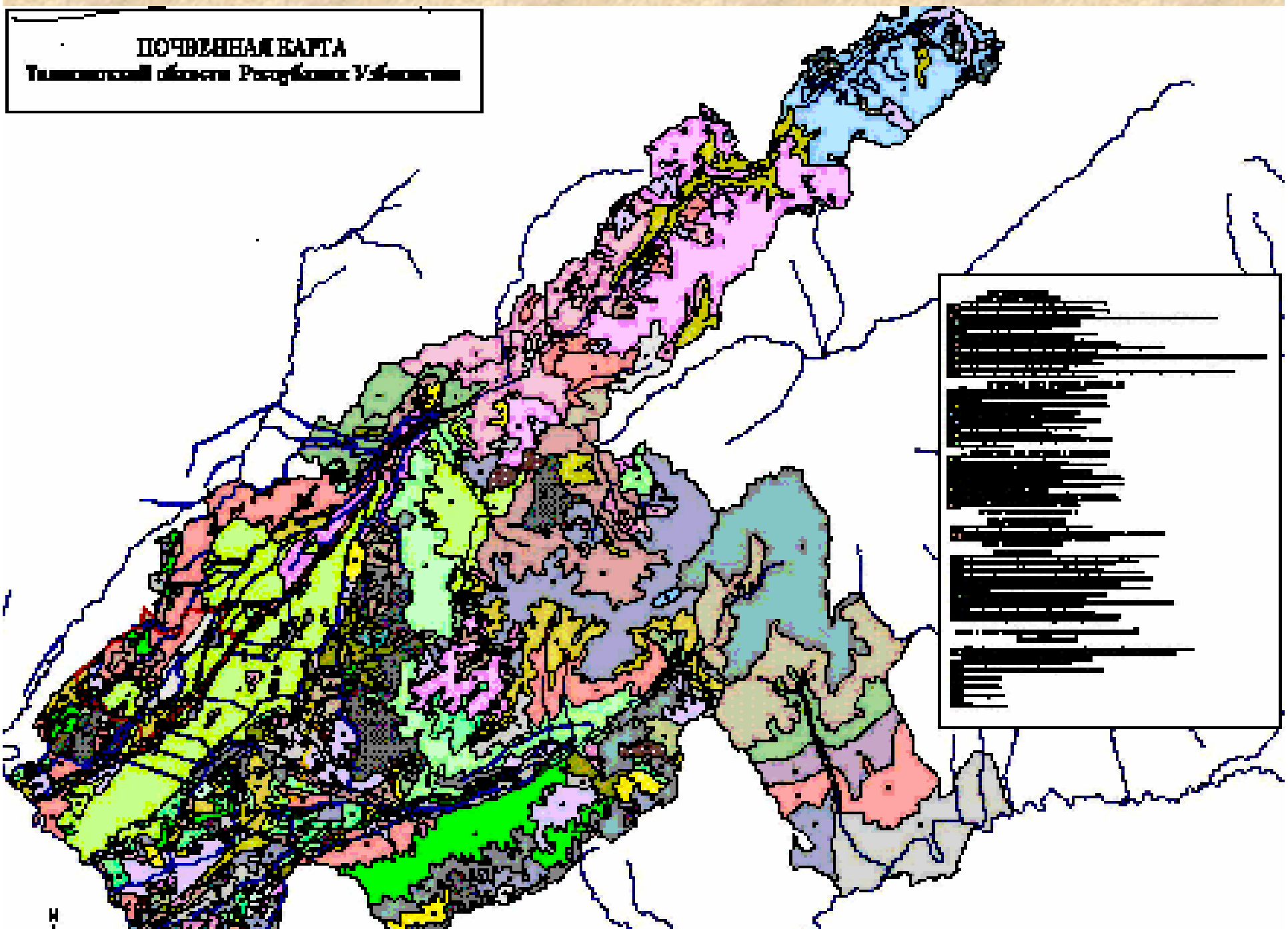
- SOTER DATE BASE.

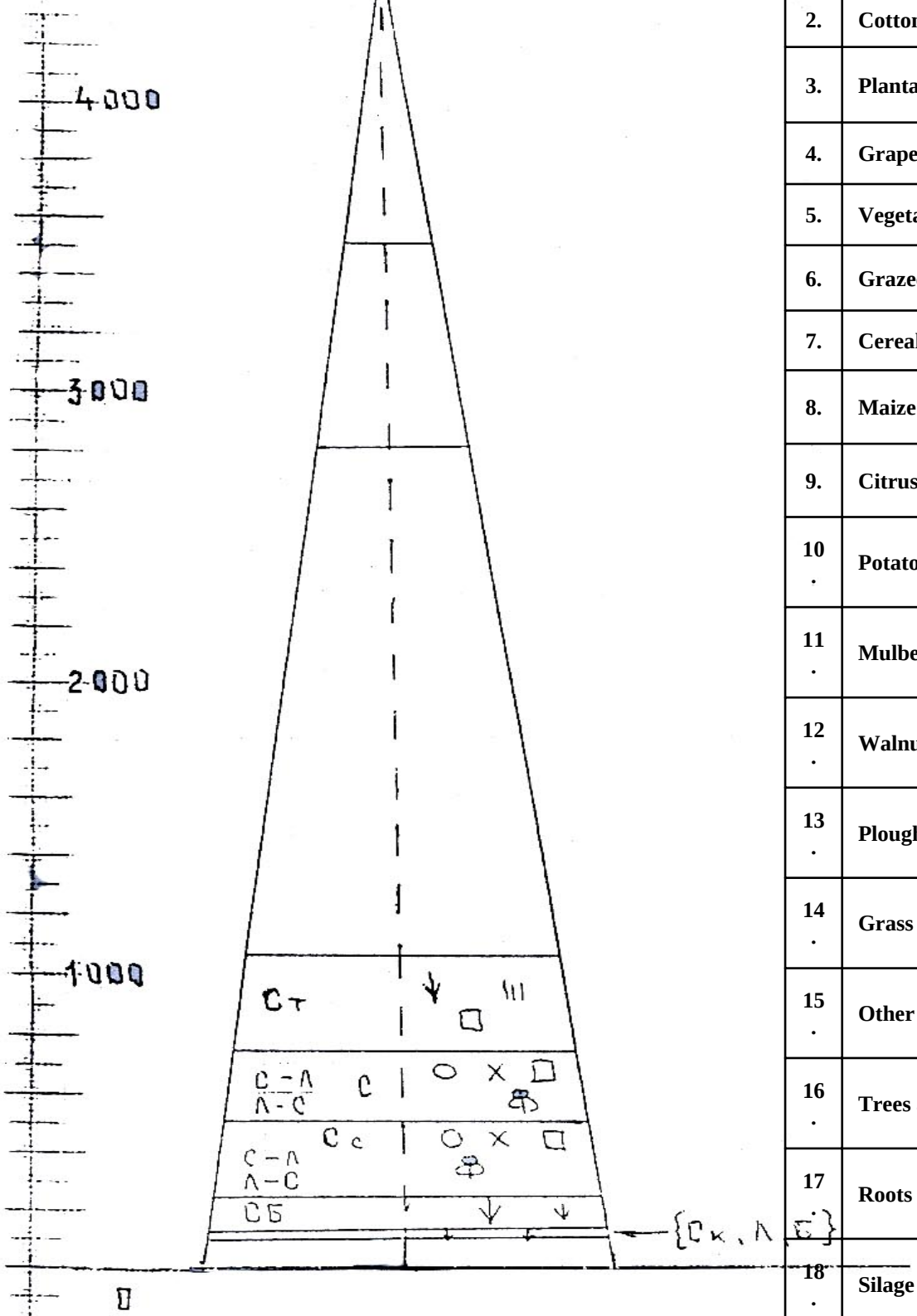
SOTER DATE BASE STRUCTURE:

- TERRAIN.
- TERRAIN COMPONENT
- TERRAIN COMPONENT DATA
- SOIL COMPONENTSOIL PROFILE
- HORIZON
- PLANT

118parameters for 32 SOTER units

SOTER UNIT MAP





2.	Cotton (pima, G barbadense)	○
3.	Plantation crops	✳
4.	Grape	□
5.	Vegetables, cucurbits	△
6.	Grazed pasture	↓
7.	Cereals	×
8.	Maize grain	✳
9.	Citrus	ʃ
10.	Potato	⬭
11.	Mulberry	⚲
12.	Walnut	⚲
13.	Ploughland	~
14.	Grass	≡
15.	Other	Λ
16.	Trees and yards	– – –
17	Roots	⚲
18.	Silage maize	⚲

EPIC MODEL CALLIBRATION

1. FERGANA AREA

- Preparing input data for Fergana, running MS-DOS EPIC 3060
- Preparing input data for Fergana MS-Windows EPIC 5300

2. CHIRCHIK –AHANGARAN BASIN

- Preparing input data for Yangiyul raion

SOIL DATA, FIELD 13, FERGANA, UZBEKISTAN											
Soil	Horiron Depth	Portide Density	Bulk Density	Porosity	Fraction Sand	Fract Silt	Fract Clan	FC Field capacity	WP Wilt.point	Ksat cm\hr	Saturat moisture
Tipe	cm	g\см^3	g\см^3								
Loam	25	2.59	1.47	0.432	0.34	0.46	0.2	0.3292	0.1481	1.9	0.48
Loam	35	2.51	1.4	0.442	0.38	0.47	0.15	0.327	0.1472	1.3	0.42
Loam	50	2.57	1.32	0.486	0.45	0.48	0.07	0.287	0.1355	0.8	0.42
Loam	62	2.58	1.28	0.504	0.43	0.41	0.16	0.287	0.1361	0.8	0.42
Loam	76	2.56	1.41	0.449	0.41	0.44	0.15	0.296	0.1621	0.6	0.42
Loam	91	2.58	1.45	0.438	0.51	0.42	0.07	0.296	0.1508	0.6	0.44
Loam	130	2.66	1.52	0.429	0.44	0.49	0.07	0.312	0.152	0.8	0.42
Loam	150	2.66	1.53	0.425	0.41	0.49	0.1	0.407	0.1914	0.8	0.42
Loam	248	2.62	1.59	0.393	0.41	0.49	0.1	0.407	0.2115	1	0.42

Field:	**13**	**Crop:**	**Cotton - Upland**	**Field area 10 ha**	**From 01-11-2000 till 10-12-2001**	
Single superphosphate	**28.05.2001**	**500**	**50**	**0**	**3.5**	**0**
Ammonium nitrate	**28.05.2001**	**1 500.00**	**150**	**49.5**	**0**	**0**
Potassium chloride	**22.06.2001**	**500**	**50**	**0**	**0**	**25**
Single superphosphate	**22.06.2001**	**1 000.00**	**100**	**0**	**7**	**0**
Urea	**22.06.2001**	**1 000.00**	**100**	**46**	**0**	**0**
Total for crop:		**95.5**	**10.5**	**25**		

FSITE SITE3060.DAT
FWPM1 WPM1US.DAT
FWPM5 WPM53060.DAT
FWIND WINDUS.DAT
FWIDX WIDX3060.DAT
FCROP CROPCMN.DAT
FTILL TILLCMN.DAT
FPEST PEST3060.DAT
FFERT FERT3060.DAT
FSOIL SOIL3060.DAT
FOPSC OPSC3060.DAT
FTR55 TR553060.DAT
FPARM PARM3060.DAT
FMLRN MLRN3060.DAT
FPRNT PRNT3060.DAT

EPIC3060 2006 330 16:44:37

FIELD RESULT

Crop yield - Production

Date planted	Date harvested	Planting - harvest int'l	Main product	Yield (t/ha) Plot	Field
			Farm 40 Azizbek-1		
08.04.2001	26.08.2001	140	Cotton - Upland - seed cotton	2.29	3.51

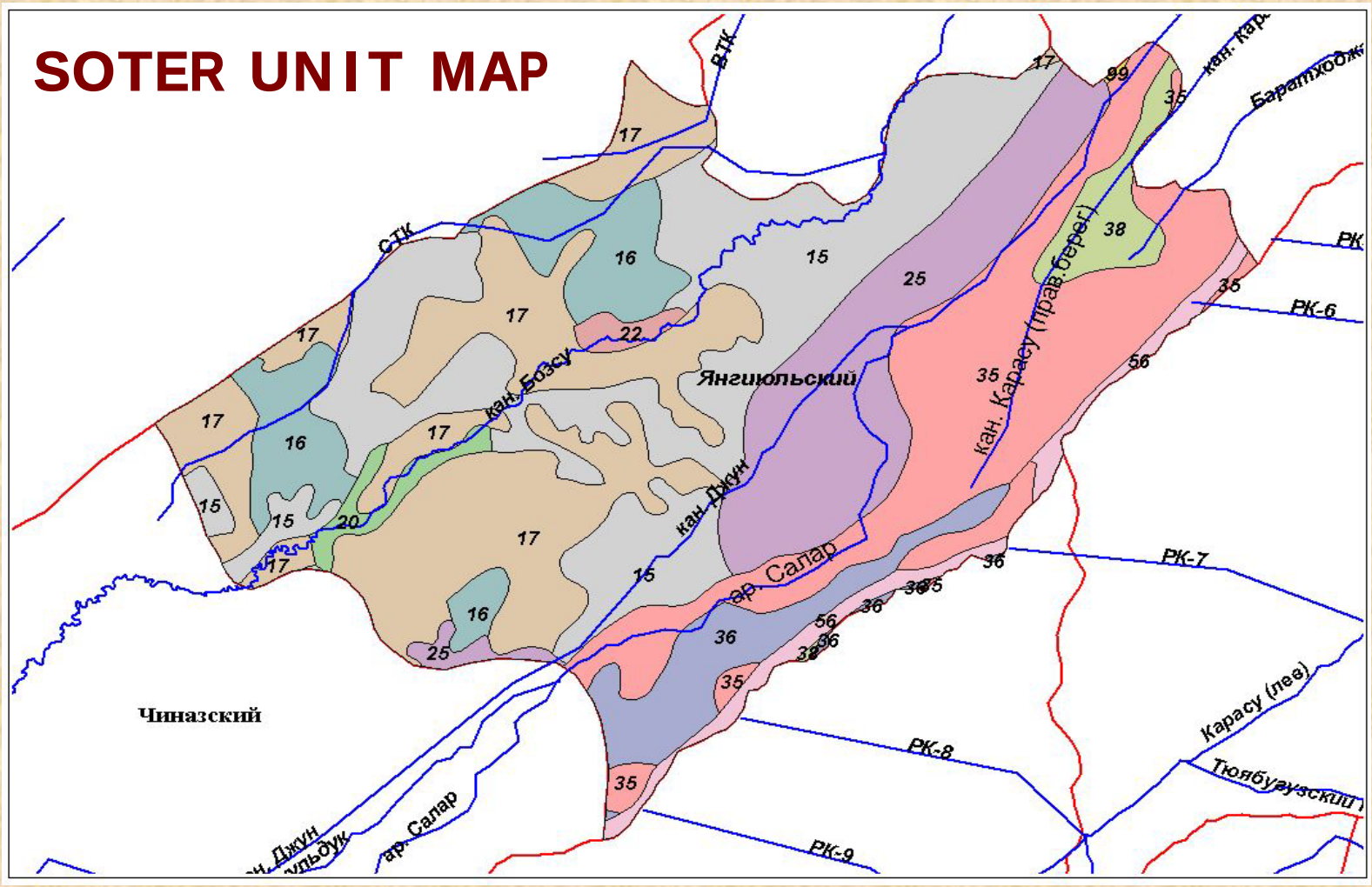
COTP YLD= 1.0/ 1.6 BIOM= 9.8T/HA YLN= 29. YLP= 4. YLK= 23. FN= 96. FP= 11. FK= 25.KG/HA

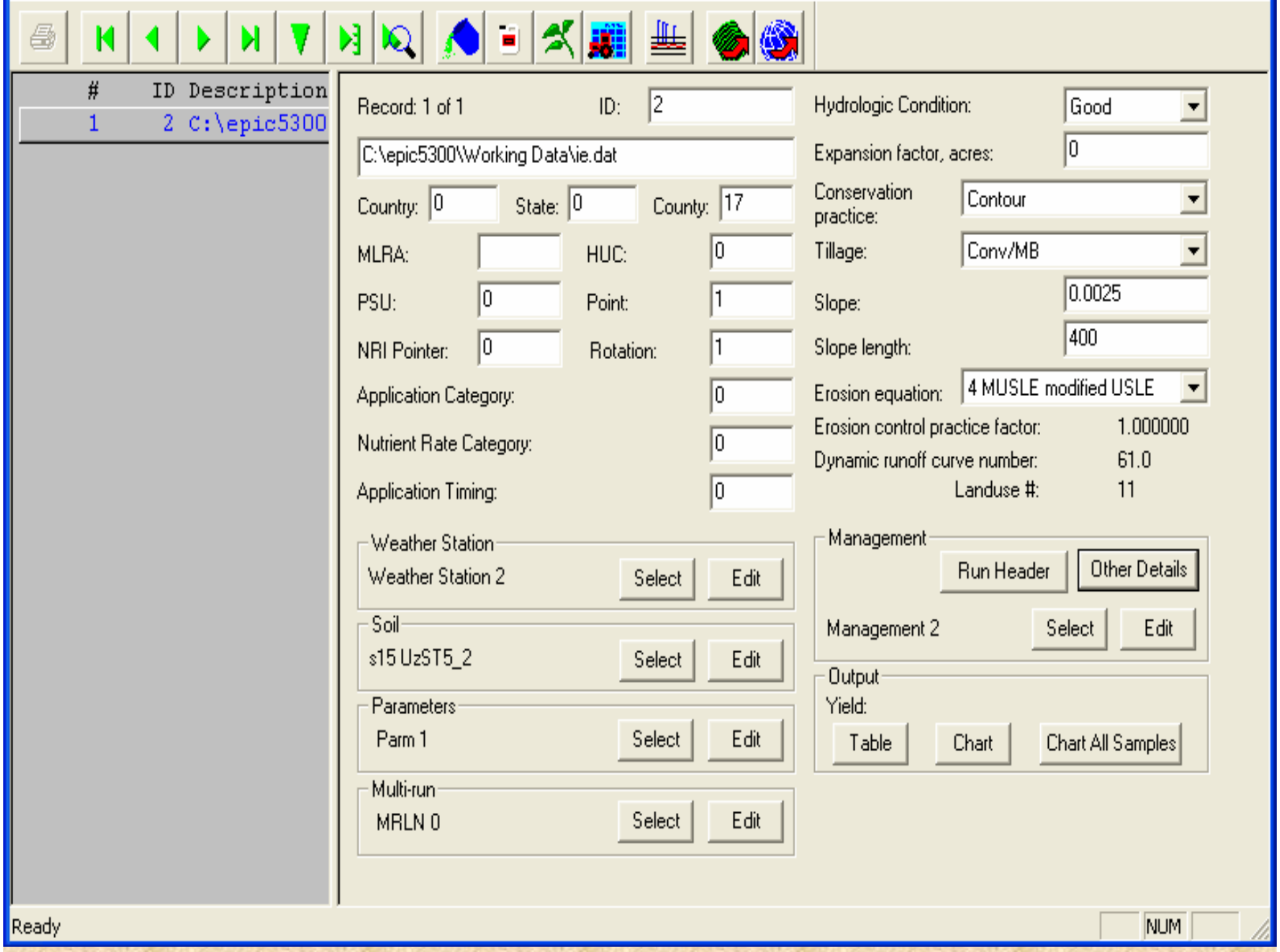
IRGA= 200. IRDL= 15. CAW= 399.MM RAD= 3392.MJ/M2 WUEF= 6.85KG/MM HU= 1578. PSTF=1.00

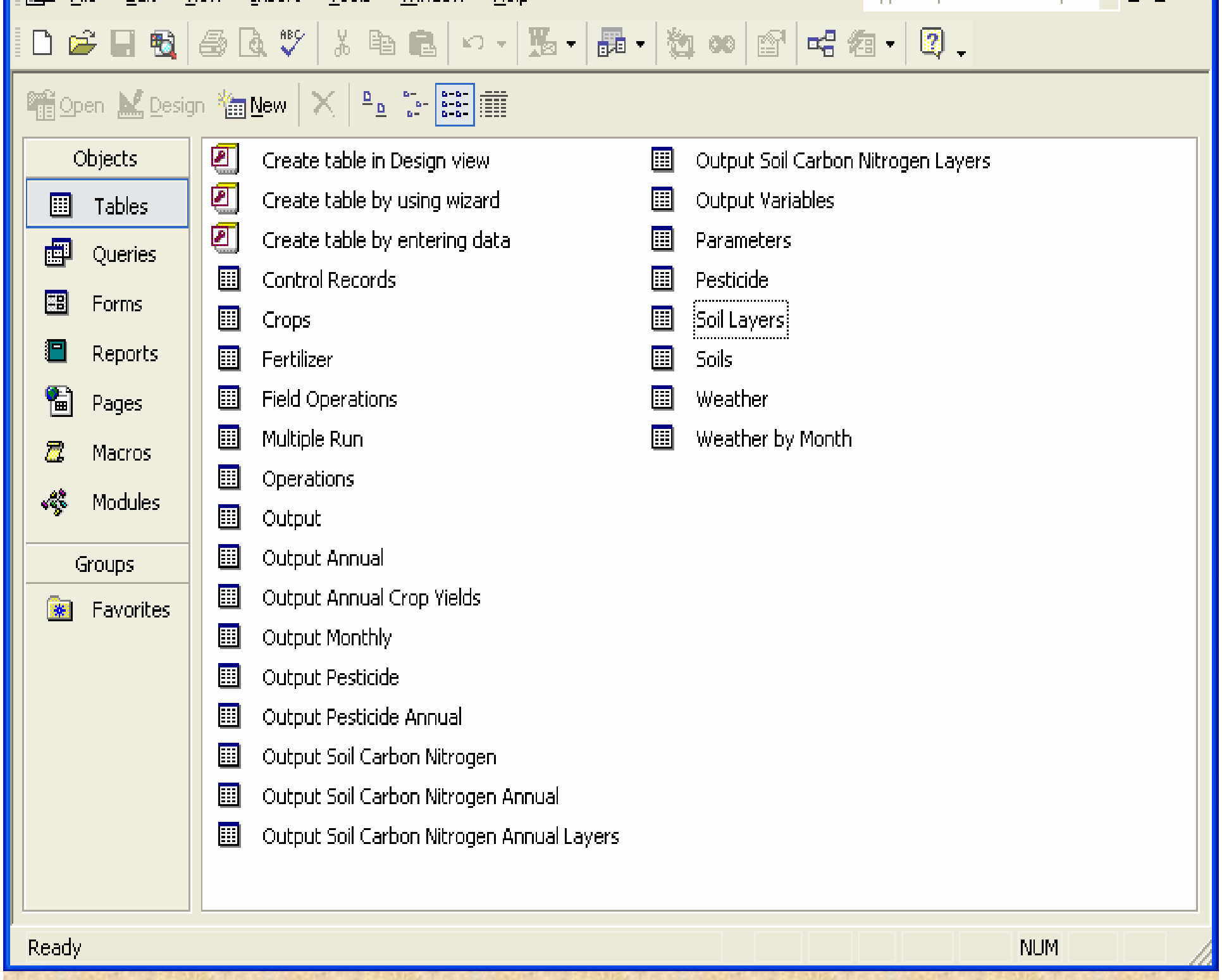
COST= 533.90 COOP= 176.78 RTRN= 821. NTRN= 288. NTRO= 645.$/HA

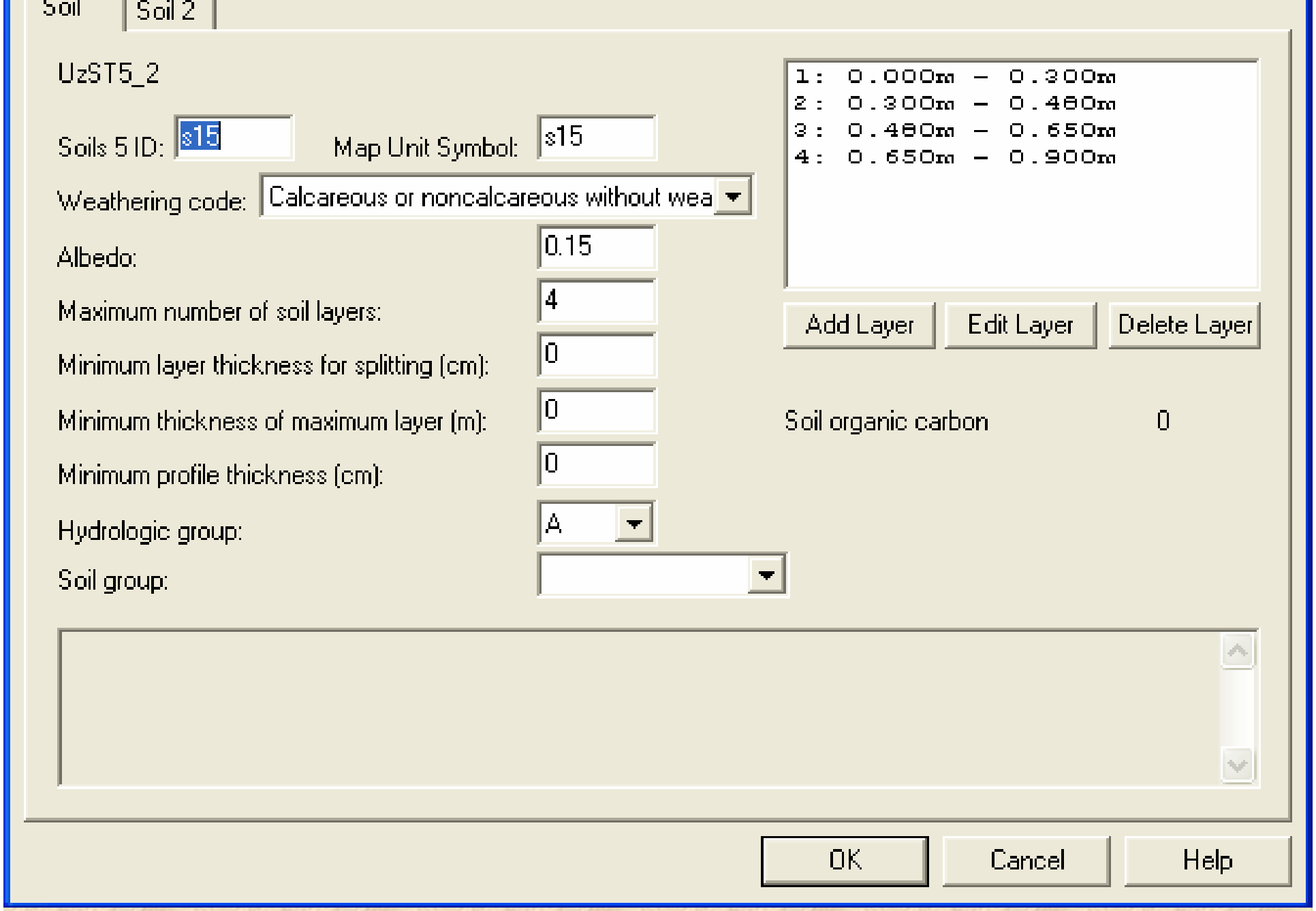
STRESS (BIOM) WATER= 90.3 N= 0.0 P= 0.0 K= 0.0 TEMP= 2.3 AIR= 0.0 SALT= 0.0 (ROOT) BD= 0.0 ALSAT= 0

Yangiyul area




#
ID
Description
1
2
C:\epic5300
Record: 1 of 1
ID: 2
C:\epic5300\Working Data\ie.dat
Country: 0
State: 0
County: 17
MLRA:
HUC: 0
PSU: 0
Point: 1
NRI Pointer: 0
Rotation: 1
Application Category: 0
Nutrient Rate Category: 0
Application Timing: 0
Weather Station
Weather Station 2
Select
Edit
Soil
s15 UzST5_2
Select
Edit
Parameters
Parm 1
Select
Edit
Multi-run
MRLN 0
Select
Edit
Hydrologic Condition: Good
Expansion factor, acres: 0
Conservation practice: Contour
Tillage: Conv/MB
Slope: 0.0025
Slope length: 400
Erosion equation: 4 MUSLE modified USLE
Erosion control practice factor: 1.000000
Dynamic runoff curve number: 61.0
Landuse #: 11
Management
Run Header
Other Details
Management 2
Select
Edit
Output
Yield:
Table
Chart
Chart All Samples
Ready
NUM


Open
Design
New
Objects
Tables
Queries
Forms
Reports
Pages
Macros
Modules
Groups
Favorites
Create table in Design view
Create table by using wizard
Create table by entering data
Control Records
Crops
Fertilizer
Field Operations
Multiple Run
Operations
Output
Output Annual
Output Annual Crop Yields
Output Monthly
Output Pesticide
Output Pesticide Annual
Output Soil Carbon Nitrogen
Output Soil Carbon Nitrogen Annual
Output Soil Carbon Nitrogen Annual Layers
Output Soil Carbon Nitrogen Layers
Output Variables
Parameters
Pesticide
Soil Layers
Soils
Weather
Weather by Month
Ready
NUM


Soil
Soil 2
UzST5_2
Soils 5 ID:
s15
Map Unit Symbol:
s15
Weathering code:
Calcareous or noncalcareous without wea
Albedo:
0.15
Maximum number of soil layers:
4
Minimum layer thickness for splitting (cm):
0
Minimum thickness of maximum layer (m):
0
Minimum profile thickness (cm):
0
Hydrologic group:
A
Soil group:
1: 0.000m - 0.300m
2: 0.300m - 0.460m
3: 0.460m - 0.650m
4: 0.650m - 0.900m
Add Layer
Edit Layer
Delete Layer
Soil organic carbon
0
OK
Cancel
Help

Soil Layer | Soil Layer | Carbon

Depth from surface to bottom of layer (m):	0.3		Nitrate concentration (g/t):	7.6
Bulk density (t/m^3):	1.3	Oven dry:	0	Labile P concentration (g/t):	0
Wilting point (m/m):			0	Crop residue (t/ha):	0
Field capacity (m/m):			0	Phosphorus sorption ratio:	0
Sand (%):	18	Silt (%):	57	Saturated conductivity (mm/h):	19
Organic N concentration (g/t):			0	Lateral hydraulic conductivity (mm/h):	0
pH:			7.5	Organic P concentration (g/t):	0
Sum of bases (cmol/kg):			0	NO3 leaching fraction of storage:	0
Organic carbon (%):	0.67	(t/ha):	0	Exchangeable K concentration (g/t):	0
Calcium Carbonate (%):			11	Electrical conductivity (mmho/cm):	0
Cation exchange capacity (cmol/kg):			0		
Course fragment content (% vol):			0		

Z (m): "Глубина от поверхности до нижней части почвенного слоя. Обычно глубины от поверхности до нижней части слоев назначаются чтобы совпадать с почвенными данными из таблиц IV.1/IV.2.Первый слой должен быть всегда [.010]""

Next layer up | Next layer down

OK | Cancel | Help

EPIC Weather | Air Temperature | Precip | Precip Occurance | Other | EPIC Wind

	Ave solar radiation	Ave relative humidity
January	12.9	0.85
February	17.7	0.81
March	25	0.74
April	32.5	0.67
May	37	0.61
June	37.7	0.53
July	35	0.56
August	32.1	0.6
September	27.5	0.62
October	21	0.69
November	14.7	0.78
December	11.8	0.85

OK | Cancel | Help

PERSPECTIVES FOR THE LAST PROJECT YEAR

- Upscaling of the crop management information to the basin level and input into IEPIC Operations table
- Produce the climate station polygons
- Generate LUSAC layer (land use-soil-climate units)
- Preparing control records for the basin level
- Simulating all crop and management options for each LUSAC with IEPIC
- Aggregating the IEPIC results from the LUSAC level to the rayon level
- In the case of climate scenarios: Repeating simulation and aggregation steps for the scenario conditions
- In the case of land use change scenarios: Generate new LUSAC layers and repeating simulation and aggregation steps for the scenario conditions