

# surveyor vs. geol. map

*fabian gruber*

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	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	7	0	0	0	0	1	0	0	0	0	0	0	1	0	3
CBD	0	4	0	0	0	0	0	0	0	0	0	0	8	0	2
CD	0	0	3	0	0	0	0	1	0	0	0	0	1	0	0
CSR	0	0	1	2	0	0	0	7	0	0	1	0	13	0	12
DC	4	0	3	0	5	0	0	2	0	0	0	0	20	0	2
GLD	0	0	0	0	0	5	0	0	0	0	0	0	0	0	2
IMS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
LD	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0
MrD	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1
MxD	0	0	1	0	0	0	0	0	0	0	0	0	6	0	1
SB	0	1	1	0	0	2	0	1	0	0	2	14	3	1	24
SD	0	3	0	2	1	0	0	4	0	0	0	4	55	0	15
SSR	0	0	0	0	0	0	0	2	0	0	1	0	3	3	1
TG	1	0	0	1	0	1	0	3	0	1	5	0	9	0	88

```
## [1] Number of observations: 380
## [1] Summary of naive statistics
## [1] Overall accuracy, stdev, CV%: 0.4895 , 0.0256 , 5.2
## [1] 95 % confidence limits for accuracy: 0.4379 ... 0.5411
## [1] User's accuracy
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.5833 0.2857 0.6000 0.0556 0.1389 0.7143 0.0000 0.0000 0.0000 0.0000
##      MxD      SB      SD      SSR      TG
## 0.0000 0.2857 0.6548 0.3000 0.8073
## [1] Producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.5385 0.4444 0.3333 0.4000 0.8333 0.4545      NaN 0.0000      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.0000 0.7000 0.4508 0.7500 0.5828
## [1] Summary of kappa statistics
## [1] Overall kappa, stdev, & CV%: 0.363 , 0.0288 , 7.9
## [1] 95 % confidence limits for kappa: 0.3054 ... 0.4207
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD
## 0.5686 0.2684 0.5903 0.0430 0.1251 0.7058 0.0000 -0.0556 0.0000
##      MrD      MxD      SB      SD      SSR      TG
## -0.0026 -0.0243 0.2460 0.4915 0.2926 0.6803
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.1454 0.1204 0.2232 0.0355 0.0538 0.1749 0.0000 0.0128 0.0000 0.0026
##      MxD      SB      SD      SSR      TG
## 0.0082 0.0618 0.0696 0.1438 0.0582
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 25.6 44.9 37.8 82.5 43.0 24.8      NaN -23.0      NaN -100.1
##      MxD      SB      SD      SSR      TG
```

```

## -33.7 25.1 14.2 49.1 8.6
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
## AD CBD CD CSR DC GLD IMS ISR LD
## 0.5234 0.4232 0.3244 0.3372 0.8159 0.4443 NaN -0.0080 NaN
## MrD MxD SB SD SSR TG
## -0.0080 -0.0215 0.6556 0.2950 0.7432 0.4150
## AD CBD CD CSR DC GLD IMS ISR LD MrD
## 0.1405 0.1697 0.1567 0.2401 0.1676 0.1505 NaN 0.0046 NaN 0.0046
## MxD SB SD SSR TG
## 0.0077 0.1157 0.0469 0.2218 0.0453
## AD CBD CD CSR DC GLD IMS ISR LD MrD MxD SB
## 26.8 40.1 48.3 71.2 20.5 33.9 NaN -58.0 NaN -58.0 -35.7 17.6
## SD SSR TG
## 15.9 29.8 10.9
## AD CBD CD CSR DC GLD IMS ISR LD MrD MxD SB
## 26.8 40.1 48.3 71.2 20.5 33.9 NaN -58.0 NaN -58.0 -35.7 17.6
## SD SSR TG
## 15.9 29.8 10.9

```

```
## [1] "Confusion after predicting with SGUcode_TRI_hr_ws38"
```

	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	11	0	0	0	0	0	0	0	0	0	0	0	1	0	1
CBD	0	5	0	0	0	0	0	0	0	0	0	0	3	0	1
CD	0	0	5	0	0	0	0	0	0	0	0	0	2	0	2
CSR	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2
DC	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
GLD	0	0	0	0	0	10	0	0	0	0	0	0	0	0	1
IMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	0	0	0	0	0	6	0	0	0	0	10	0	3
LD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MrD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MxD	0	0	0	0	0	0	0	0	0	0	3	0	0	0	6
SB	0	0	0	0	0	0	0	0	0	0	0	8	4	0	8
SD	0	0	0	0	0	0	0	0	0	0	0	2	111	0	7
SSR	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
TG	0	0	0	0	0	0	0	0	0	0	0	0	21	0	129

```
## [1] Number of observations: 376
## [1] Summary of naive statistics
## [1] Overall accuracy, stdev, CV%: 0.7766 , 0.0215 , 2.8
## [1] 95 % confidence limits for accuracy: 0.7332 ... 0.82
## [1] User's accuracy
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.8462 0.5556 0.5556 0.0000 0.1667 0.9091      NaN 0.3158      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.3333 0.4000 0.9250 0.7500 0.8600
## [1] Producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 1.0000 1.0000 1.0000      NaN 1.0000 1.0000      NaN 1.0000      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 0.8000 0.6938 1.0000 0.7963
## [1] Summary of kappa statistics
## [1] Overall kappa, stdev, & CV%: 0.675 , 0.0304 , 4.5
## [1] 95 % confidence limits for kappa: 0.6141 ... 0.7359
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.8415 0.5496 0.5496 0.0000 0.1644 0.9066      NaN 0.3047      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.3280 0.3836 0.8694 0.7480 0.7540
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.1025 0.1661 0.1661 0.0000 0.1505 0.0888      NaN 0.1046      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.1559 0.1089 0.0405 0.2177 0.0460
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD      MxD      SB      SD      SSR      TG
## 12.2 30.2 30.2      NaN 91.5  9.8      NaN 34.3      NaN      NaN 47.5 28.4  4.7 29.1  6.1
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 1.0000 1.0000 1.0000      NaN 1.0000 1.0000      NaN 1.0000      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 0.7888 0.5502 1.0000 0.6611
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

##	0.0000	0.0000	0.0000		NaN	0.0000	0.0000		NaN	0.0000		NaN				
##		MxD		SB		SD		SSR		TG						
##	0.0000	0.1329	0.0449	0.0000	0.0465											
##	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG	
##	0.0	0.0	0.0	NaN	0.0	0.0	NaN	0.0	NaN	NaN	0.0	16.8	8.2	0.0	7.0	
##	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG	
##	0.0	0.0	0.0	NaN	0.0	0.0	NaN	0.0	NaN	NaN	0.0	16.8	8.2	0.0	7.0	

```
## [1] "Confusion after predicting with SGUcode_TRI_hr_ws38_geom_hr_L50m_fl10_rplipmps_UE_hr_20cells_h
```

	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	12	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CBD	0	5	0	0	0	0	0	0	0	0	0	0	3	0	1
CD	0	0	7	0	0	0	0	0	0	0	0	0	1	0	1
CSR	0	0	0	2	0	0	0	0	0	0	0	0	2	0	1
DC	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
GLD	0	0	0	0	0	9	0	0	0	0	0	0	0	0	2
IMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	0	0	0	0	0	13	0	0	0	0	3	0	3
LD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MrD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MxD	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5
SB	0	0	0	0	0	0	0	0	0	0	0	14	4	0	2
SD	0	0	0	0	0	0	0	1	0	0	0	0	112	0	7
SSR	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
TG	0	0	0	0	0	0	0	0	0	0	0	0	4	0	146

```
## [1] Number of observations: 376
## [1] Summary of naive statistics
## [1] Overall accuracy, stdev, CV%: 0.883 , 0.0166 , 1.9
## [1] 95 % confidence limits for accuracy: 0.8492 ... 0.9168
## [1] User's accuracy
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.9231 0.5556 0.7778 0.4000 0.8333 0.8182      NaN 0.6842      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.4444 0.7000 0.9333 0.7500 0.9733
## [1] Producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000      NaN 0.9286      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 1.0000 0.8615 1.0000 0.8538
## [1] Summary of kappa statistics
## [1] Overall kappa, stdev, & CV%: 0.8331 , 0.0234 , 2.8
## [1] 95 % confidence limits for kappa: 0.7859 ... 0.8803
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.9205 0.5496 0.7736 0.3968 0.8311 0.8137      NaN 0.6720      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.4385 0.6884 0.8981 0.7480 0.9511
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.0761 0.1661 0.1405 0.2185 0.1538 0.1185      NaN 0.1090      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.1652 0.1047 0.0339 0.2177 0.0238
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD      MxD      SB      SD      SSR      TG
##      8.3 30.2 18.2 55.1 18.5 14.6      NaN 16.2      NaN      NaN 37.7 15.2  3.8 29.1  2.5
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000      NaN 0.9248      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 1.0000 0.7966 1.0000 0.7568
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```

## 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000      NaN 0.0723      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 0.0000 0.0000 0.0419 0.0000 0.0410
## AD CBD  CD CSR  DC GLD IMS ISR  LD MrD MxD  SB  SD SSR  TG
## 0.0 0.0 0.0 0.0 0.0 0.0 NaN 7.8 NaN NaN 0.0 0.0 5.3 0.0 5.4
## AD CBD  CD CSR  DC GLD IMS ISR  LD MrD MxD  SB  SD SSR  TG
## 0.0 0.0 0.0 0.0 0.0 0.0 NaN 7.8 NaN NaN 0.0 0.0 5.3 0.0 5.4

```

```
## [1] "Confusion after predicting with SGUcode_TRI_hr_ws9"
```

	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	8	0	0	0	0	0	0	0	0	0	0	0	3	0	2
CBD	0	5	0	0	0	0	0	0	0	0	0	0	3	0	1
CD	0	0	4	0	0	0	0	0	0	0	0	0	3	0	2
CSR	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1
DC	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
GLD	0	0	0	0	0	8	0	0	0	0	0	1	0	0	2
IMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	0	0	0	0	0	8	0	0	0	0	5	0	6
LD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MrD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MxD	0	0	0	0	0	0	0	0	0	0	2	1	0	0	6
SB	0	0	0	0	0	0	0	0	0	0	0	9	4	0	7
SD	0	0	0	0	0	0	0	0	0	0	0	3	110	0	7
SSR	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
TG	0	0	0	0	0	0	0	1	0	0	0	3	9	0	137

```
## [1] Number of observations: 376
```

```
## [1] Summary of naive statistics
```

```
## [1] Overall accuracy, stdev, CV%: 0.7846 , 0.0212 , 2.7
```

```
## [1] 95 % confidence limits for accuracy: 0.7417 ... 0.8275
```

```
## [1] User's accuracy
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 0.6154 0.5556 0.4444 0.0000 0.1667 0.7273      NaN 0.4211      NaN 0.0000
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 0.2222 0.4500 0.9167 0.7500 0.9133
```

```
## [1] Producer's reliability:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 1.0000 1.0000 1.0000      NaN 1.0000 1.0000      NaN 0.8889      NaN      NaN
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 1.0000 0.5294 0.7534 1.0000 0.7919
```

```
## [1] Summary of kappa statistics
```

```
## [1] Overall kappa, stdev, & CV%: 0.6863 , 0.0295 , 4.3
```

```
## [1] 95 % confidence limits for kappa: 0.6272 ... 0.7454
```

```
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 0.6070 0.5496 0.4385 0.0000 0.1644 0.7213      NaN 0.4069      NaN 0.0000
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 0.2181 0.4240 0.8638 0.7480 0.8395
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 0.1360 0.1661 0.1652 0.0000 0.1505 0.1361      NaN 0.1126      NaN 0.0000
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 0.1367 0.1131 0.0398 0.2177 0.0405
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD      MxD      SB      SD      SSR      TG
```

```
## 22.4 30.2 37.7      NaN 91.5 18.9      NaN 27.7      NaN      NaN 62.7 26.7 4.6 29.1 4.8
```

```
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 1.0000 1.0000 1.0000      NaN 1.0000 1.0000      NaN 0.8830      NaN      NaN
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 1.0000 0.5030 0.6378 1.0000 0.6538
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

##	0.0000	0.0000	0.0000		NaN	0.0000	0.0000		NaN	0.1100		NaN		NaN	
##	MxD		SB		SD		SSR		TG						
##	0.0000	0.1251	0.0462		0.0000	0.0448									
##	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
##	0.0	0.0	0.0	NaN	0.0	0.0	NaN	12.5	NaN	NaN	0.0	24.9	7.2	0.0	6.9
##	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
##	0.0	0.0	0.0	NaN	0.0	0.0	NaN	12.5	NaN	NaN	0.0	24.9	7.2	0.0	6.9



```
## [1] "Confusion after predicting with SGUcode_TRI_hr_ws9_geom_hr_L50m_fl10_rplipmps_UE_hr_20cells_hr"
```

	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	12	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CBD	0	5	0	0	0	0	0	0	0	0	0	0	3	0	1
CD	0	0	8	0	0	0	0	0	0	0	0	0	0	0	1
CSR	0	0	0	3	0	0	0	0	0	0	0	0	1	0	1
DC	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
GLD	0	0	0	0	0	9	0	0	0	0	0	0	0	0	2
IMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	0	0	0	0	0	13	0	0	0	0	3	0	3
LD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MrD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MxD	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5
SB	0	0	0	0	0	0	0	0	0	0	0	16	2	0	2
SD	0	0	0	0	0	0	0	1	0	0	0	0	112	0	7
SSR	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
TG	0	0	0	0	0	0	0	0	0	0	0	0	3	0	147

```
## [1] Number of observations: 376
## [1] Summary of naive statistics
## [1] Overall accuracy, stdev, CV%: 0.8963 , 0.0157 , 1.8
## [1] 95 % confidence limits for accuracy: 0.8641 ... 0.9284
## [1] User's accuracy
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.9231 0.5556 0.8889 0.6000 0.8333 0.8182      NaN 0.6842      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.4444 0.8000 0.9333 0.7500 0.9800
## [1] Producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000      NaN 0.9286      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 1.0000 0.8960 1.0000 0.8547
## [1] Summary of kappa statistics
## [1] Overall kappa, stdev, & CV%: 0.8527 , 0.0222 , 2.6
## [1] 95 % confidence limits for kappa: 0.8079 ... 0.8974
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.9205 0.5496 0.8865 0.5968 0.8311 0.8137      NaN 0.6720      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.4385 0.7911 0.9001 0.7480 0.9631
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.0761 0.1661 0.1067 0.2197 0.1538 0.1185      NaN 0.1090      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.1652 0.0924 0.0332 0.2177 0.0208
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD      MxD      SB      SD      SSR      TG
##      8.3 30.2 12.0 36.8 18.5 14.6      NaN 16.2      NaN      NaN 37.7 11.7  3.7 29.1  2.2
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000      NaN 0.9248      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 1.0000 0.8472 1.0000 0.7582
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```

## 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000      NaN 0.0723      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 0.0000 0.0000 0.0384 0.0000 0.0407
## AD CBD  CD CSR  DC GLD IMS ISR  LD MrD MxD  SB  SD SSR  TG
## 0.0 0.0 0.0 0.0 0.0 0.0 NaN 7.8 NaN NaN 0.0 0.0 4.5 0.0 5.4
## AD CBD  CD CSR  DC GLD IMS ISR  LD MrD MxD  SB  SD SSR  TG
## 0.0 0.0 0.0 0.0 0.0 0.0 NaN 7.8 NaN NaN 0.0 0.0 4.5 0.0 5.4

```

```
## [1] "Confusion after predicting with SGUcode_slope_DTM_50m_avg_ws9_50m"
```

	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	11	0	0	0	0	0	0	0	0	0	0	0	1	0	1
CBD	0	2	0	0	0	0	0	0	0	0	0	0	6	0	1
CD	0	0	5	0	0	0	0	0	0	0	0	0	4	0	0
CSR	0	0	0	1	0	0	0	0	0	0	0	0	3	0	1
DC	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0
GLD	1	0	0	0	0	8	0	0	0	0	0	1	0	0	1
IMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	0	0	0	0	0	8	0	0	0	0	7	0	4
LD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MrD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MxD	0	0	0	0	0	0	0	0	0	0	1	1	1	0	6
SB	0	0	0	0	0	0	0	0	0	0	0	10	4	0	6
SD	0	0	0	0	0	0	0	0	0	0	0	2	108	0	10
SSR	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1
TG	0	0	0	0	0	0	0	1	0	0	0	1	19	0	129

```
## [1] Number of observations: 376
## [1] Summary of naive statistics
## [1] Overall accuracy, stdev, CV%: 0.758 , 0.0221 , 2.9
## [1] 95 % confidence limits for accuracy: 0.7134 ... 0.8026
## [1] User's accuracy
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.8462 0.2222 0.5556 0.2000 0.0000 0.7273      NaN 0.4211      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.1111 0.5000 0.9000 0.5000 0.8600
## [1] Producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.8462 1.0000 1.0000 1.0000      NaN 1.0000      NaN 0.8889      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 0.6667 0.6792 1.0000 0.8012
## [1] Summary of kappa statistics
## [1] Overall kappa, stdev, & CV%: 0.6485 , 0.0308 , 4.8
## [1] 95 % confidence limits for kappa: 0.5867 ... 0.7103
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.8406 0.2181 0.5496 0.1979 0.0000 0.7213      NaN 0.4069      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.1087 0.4792 0.8267 0.4973 0.7552
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.1031 0.1367 0.1661 0.1775 0.0000 0.1361      NaN 0.1126      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.1028 0.1133 0.0454 0.2500 0.0458
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD      MxD      SB      SD      SSR      TG
## 12.3 62.7 30.2 89.7      NaN 18.9      NaN 27.7      NaN      NaN 94.5 23.6 5.5 50.3 6.1
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.8406 1.0000 1.0000 1.0000      NaN 1.0000      NaN 0.8830      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 0.6479 0.5289 1.0000 0.6693
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

##	0.1031	0.0000	0.0000	0.0000		NaN	0.0000		NaN	0.1100		NaN		NaN	
##	MxD		SB		SD		SSR		TG						
##	0.0000	0.1268	0.0453	0.0000	0.0464										
##	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
##	12.3	0.0	0.0	0.0	NaN	0.0	NaN	12.5	NaN	NaN	0.0	19.6	8.6	0.0	6.9
##	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
##	12.3	0.0	0.0	0.0	NaN	0.0	NaN	12.5	NaN	NaN	0.0	19.6	8.6	0.0	6.9

```
## [1] "Confusion after predicting with SGUcode_vectorruggedness_hr_ws51"
```

	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	12	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CBD	0	3	0	0	0	0	0	0	0	0	0	0	5	0	1
CD	0	0	4	0	0	0	0	0	0	0	0	1	3	0	1
CSR	0	0	0	1	0	0	0	0	0	0	0	0	2	0	2
DC	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
GLD	0	0	0	0	0	8	0	0	0	0	0	1	0	0	2
IMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	0	0	0	0	0	8	0	0	0	0	5	0	6
LD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MrD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MxD	0	0	0	0	0	0	0	0	0	0	1	1	0	1	6
SB	0	0	0	0	0	0	0	0	0	0	0	14	4	0	2
SD	0	0	0	0	0	0	0	1	0	0	0	0	106	0	13
SSR	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
TG	0	0	0	0	0	0	0	0	0	0	0	3	11	0	136

```
## [1] Number of observations: 376
```

```
## [1] Summary of naive statistics
```

```
## [1] Overall accuracy, stdev, CV%: 0.7899 , 0.021 , 2.7
```

```
## [1] 95 % confidence limits for accuracy: 0.7474 ... 0.8324
```

```
## [1] User's accuracy
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 0.9231 0.3333 0.4444 0.2000 0.1667 0.7273      NaN 0.4211      NaN 0.0000
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 0.1111 0.7000 0.8833 0.7500 0.9067
```

```
## [1] Producer's reliability:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000      NaN 0.8889      NaN      NaN
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 1.0000 0.7000 0.7518 0.7500 0.7907
```

```
## [1] Summary of kappa statistics
```

```
## [1] Overall kappa, stdev, & CV%: 0.6961 , 0.0295 , 4.2
```

```
## [1] 95 % confidence limits for kappa: 0.6369 ... 0.7553
```

```
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 0.9205 0.3280 0.4385 0.1979 0.1644 0.7213      NaN 0.4069      NaN 0.0000
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 0.1087 0.6831 0.8133 0.7473 0.8280
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 0.0761 0.1559 0.1652 0.1775 0.1505 0.1361      NaN 0.1126      NaN 0.0000
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 0.1028 0.1065 0.0446 0.2182 0.0415
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD      MxD      SB      SD      SSR      TG
```

```
## 8.3 47.5 37.7 89.7 91.5 18.9      NaN 27.7      NaN      NaN 94.5 15.6 5.5 29.2 5.0
```

```
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```
## 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000      NaN 0.8830      NaN      NaN
```

```
##      MxD      SB      SD      SSR      TG
```

```
## 1.0000 0.6831 0.6354 0.7473 0.6518
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

##	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				NaN	0.1100		NaN		NaN
##		MxD		SB		SD		SSR		TG					
##	0.0000	0.1065	0.0473	0.2182	0.0450										
##	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
##	0.0	0.0	0.0	0.0	0.0	0.0	NaN	12.5	NaN	NaN	0.0	15.6	7.4	29.2	6.9
##	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
##	0.0	0.0	0.0	0.0	0.0	0.0	NaN	12.5	NaN	NaN	0.0	15.6	7.4	29.2	6.9

```
## [1] "Confusion after predicting with SGUcode_vectorruggedness_hr_ws57_TRI_hr_ws31"
```

	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	12	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CBD	0	7	0	0	0	0	0	0	0	0	0	0	1	0	1
CD	0	0	8	0	0	0	0	0	0	0	0	1	0	0	0
CSR	0	0	0	2	0	0	0	0	0	0	0	0	2	0	1
DC	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
GLD	0	0	0	0	0	10	0	0	0	0	0	0	0	0	1
IMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	0	0	0	0	0	13	0	0	0	0	3	0	3
LD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MrD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MxD	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4
SB	0	0	0	0	0	0	0	0	0	0	0	17	3	0	0
SD	0	0	0	0	0	0	0	1	0	0	0	0	112	0	7
SSR	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
TG	0	0	0	0	0	0	0	0	0	0	0	0	3	0	147

```
## [1] Number of observations: 376
```

```
## [1] Summary of naive statistics
```

```
## [1] Overall accuracy, stdev, CV%: 0.9069 , 0.015 , 1.7
```

```
## [1] 95 % confidence limits for accuracy: 0.8762 ... 0.9376
```

```
## [1] User's accuracy
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.9231 0.7778 0.8889 0.4000 0.8333 0.9091      NaN 0.6842      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.5556 0.8500 0.9333 0.7500 0.9800
```

```
## [1] Producer's reliability:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000      NaN 0.9286      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 0.9444 0.8960 1.0000 0.8802
```

```
## [1] Summary of kappa statistics
```

```
## [1] Overall kappa, stdev, & CV%: 0.8687 , 0.021 , 2.4
```

```
## [1] 95 % confidence limits for kappa: 0.8261 ... 0.9112
```

```
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.9205 0.7736 0.8865 0.3968 0.8311 0.9066      NaN 0.6720      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.5496 0.8425 0.9001 0.7480 0.9640
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.0761 0.1405 0.1067 0.2185 0.1538 0.0888      NaN 0.1090      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.1661 0.0832 0.0332 0.2177 0.0203
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD      MxD      SB      SD      SSR      TG
## 8.3 18.2 12.0 55.1 18.5 9.8      NaN 16.2      NaN      NaN 30.2 9.9 3.7 29.1 2.1
```

```
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000      NaN 0.9248      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 1.0000 0.9413 0.8472 1.0000 0.8008
```

```
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
```

```

## 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000      NaN 0.0723      NaN      NaN
##      MxD      SB      SD      SSR      TG
## 0.0000 0.0569 0.0384 0.0000 0.0388
## AD CBD  CD CSR  DC GLD IMS ISR  LD MrD MxD  SB  SD SSR  TG
## 0.0 0.0 0.0 0.0 0.0 0.0 NaN 7.8 NaN NaN 0.0 6.0 4.5 0.0 4.8
## AD CBD  CD CSR  DC GLD IMS ISR  LD MrD MxD  SB  SD SSR  TG
## 0.0 0.0 0.0 0.0 0.0 0.0 NaN 7.8 NaN NaN 0.0 6.0 4.5 0.0 4.8

```



Analysis of confusion whenn only TG is modelled

```
points <- sqliteGRASS_delilah(location="EPPAN_vhr",mapset = "profilpunkte",vector = "Profilpunkte_SGU_w")
df <- points[c("boden_SG23","SGUT_wTGnew")]
df <- merge(df,legend,by.x="SGUT_wTGnew",by.y="SGUcode")
df[["SGUT_wTGnew"]] <- factor(df[["SGUT_wTGnew"]],levels=legend$SGU)
df$SGU_kartiert <- factor(df$boden_SG23,levels=legend$SGU)
CM <-as.data.frame.matrix(table(df$SGU_kartiert,df$SGU))
kable(CM)
```

	AD	CBD	CD	CSR	DC	GLD	IMS	ISR	LD	MrD	MxD	SB	SD	SSR	TG
AD	7	0	0	0	4	0	1	0	0	0	0	0	0	0	1
CBD	0	4	0	0	0	0	0	0	1	0	0	1	3	0	0
CD	0	0	3	1	3	0	0	0	0	0	1	1	0	0	0
CSR	0	0	0	2	0	0	0	0	0	0	0	0	2	0	1
DC	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
GLD	1	0	0	0	0	5	0	0	0	2	0	2	0	0	1
IMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISR	0	0	1	6	2	0	0	0	0	0	0	1	4	2	3
LD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MrD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MxD	0	0	0	1	0	0	0	0	0	0	0	2	0	1	5
SB	0	0	0	0	0	0	0	0	2	0	0	14	4	0	0
SD	0	8	1	13	20	0	0	3	0	0	5	3	55	3	9
SSR	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0
TG	0	0	0	2	0	0	0	0	0	0	0	1	4	0	143

```
## [1] Number of observations: 376
## [1] Summary of naive statistics
## [1] Overall accuracy, stdev, CV%: 0.641 , 0.0247 , 3.9
## [1] 95 % confidence limits for accuracy: 0.5911 ... 0.6908
## [1] User's accuracy
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.5385 0.4444 0.3333 0.4000 0.8333 0.4545      NaN 0.0000      NaN 0.0000
##      MxD      SB      SD      SSR      TG
## 0.0000 0.7000 0.4583 0.7500 0.9533
## [1] Producer's reliability:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.8750 0.3333 0.6000 0.0800 0.1471 1.0000 0.0000 0.0000 0.0000 0.0000
##      MxD      SB      SD      SSR      TG
## 0.0000 0.5385 0.7534 0.3333 0.8720
## [1] Summary of kappa statistics
## [1] Overall kappa, stdev, & CV%: 0.5243 , 0.0281 , 5.4
## [1] 95 % confidence limits for kappa: 0.4679 ... 0.5807
## [1] Per-class kappa, stdev, & CV%, for user's accuracy:
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD
## 0.5284 0.4261 0.3243 0.3573 0.8168 0.4472      NaN -0.0080      NaN
##      MrD      MxD      SB      SD      SSR      TG
## -0.0053 -0.0162 0.6777 0.3278 0.7439 0.9172
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD
## 0.1390 0.1688 0.1567 0.2328 0.1668 0.1497      NaN 0.0047      NaN 0.0038
##      MxD      SB      SD      SSR      TG
## 0.0067 0.1083 0.0459 0.2212 0.0298
##      AD      CBD      CD      CSR      DC      GLD      IMS      ISR      LD      MrD      MxD      SB
```

```

## 26.3 39.6 48.3 65.2 20.4 33.5 NaN -58.0 NaN -70.9 -41.2 16.0
## SD SSR TG
## 14.0 29.7 3.2
## [1] Per-class kappa, stdev, & CV%, for producer's reliability:
## AD CBD CD CSR DC GLD IMS ISR LD
## 0.8705 0.3170 0.5902 0.0676 0.1332 1.0000 0.0000 -0.0532 0.0000
## MrD MxD SB SD SSR TG
## -0.0027 -0.0245 0.5125 0.6378 0.3262 0.7870
## AD CBD CD CSR DC GLD IMS ISR LD MrD
## 0.1208 0.1365 0.2233 0.0518 0.0570 0.0000 0.0000 0.0125 0.0000 0.0027
## MxD SB SD SSR TG
## 0.0083 0.0999 0.0699 0.1563 0.0402
## AD CBD CD CSR DC GLD IMS ISR LD MrD
## 13.9 43.0 37.8 76.6 42.8 0.0 NaN -23.5 NaN -100.1
## MxD SB SD SSR TG
## -33.7 19.5 11.0 47.9 5.1
## AD CBD CD CSR DC GLD IMS ISR LD MrD
## 13.9 43.0 37.8 76.6 42.8 0.0 NaN -23.5 NaN -100.1
## MxD SB SD SSR TG
## -33.7 19.5 11.0 47.9 5.1

```