Editor PE&RS,

Letters to the Editor

Dear Professor Mugnier,
I have read (and enjoyed) your articles about grids and datums. I wonder if you have any information about the history behind UTM and MGRS. I know that it was adopted by the U.S. military in 1947 and I also know how it works, but there seems to be no other information about how the exceptions in the North Sea came about, or if the latitude bands (now part of MGRS) were originally a part of UTM. When did DMA (or NIMA or NGA) "invent" MGRS? It seems that in the beginning this was part of UTM, if you look in books by J.P. Snyder. If you have any information about this I would be really happy.

Dan Ekström

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Response

The predecessors of the UTM were the World Polyconic Grid for the U.S. and Possessions, and the "British Grids" for their colonies. All of that was combined after WWII by the Corps of Engineers Army Map Service into the Universal Grid Systems consisting of the UTM and the UPS with the MGRS. Note that the UTM was identical, except for the scale factor of 0.9996, as the Deutches Herres Gitter (DHG) of the German Army. Although the French IGM also favored the "Gauss Projection" (Gauss-Kruger Transverse Mercator), for many of their colonies in Africa, it was used commonly in 3°-wide belts.

I am forwarding your inquiry directly to John W. Hager, the retired Geodesist from AMS/TOPOCOM/DMA/NIMA/NGA who was directly involved in much of the development work and was responsible for most (if not all), of the corrections and modifications to the Military Grid Reference System over the years.

Clifford J. Mugnier, C.P., C.M.S.

I went to work for the Army Map Service (AMS) in 1957 and through the years acquired a number of items concerning the UTM and MGRS. Unfortunately I had to leave all that behind when I retired in 1996. Thus I must trust to memory so some of the minor details, such as exact dates, may be in error.

The original publication of the UTM was an AMS Technical Manual (TM) published about 1947-1949. This was followed in about 1951 by Department of the Army Technical Manual 5-241-1. That document was revised a number of times; I think about six. In 1987 the Defense Mapping Agency (DMA) published the Preliminary Edition of DMA TM 8358.1 *Datums, Ellipsoids, Grids, and Grid Reference Systems*. This was followed in 1990 by Edition 1. Because of my knowledge of the subject, I was chosen as the lead author of DMA TM 8358.1.

The extension of grid zone designation 32V west from 8° to 3° was at the request of the Norwegian mapping agency. In actuality the extension was only for the extent of Norwegian territory to about 5° 12' east but the eastern limit of the British National Grid, 3°, provided a convenient limit.

The argument presented was that there would not be significant degradation of the grid coordinates and there would be a significant simplification in the mapping by not having to provide overlap grids. I note that at the equator a UTM grid will extend about 334 kilometers from the central meridian. In Norway the UTM grid will extend about 225 kilometers.

I think the original work on the UTM was under the auspices of Brigadier Guy Bomford on the part of the British and Floyd Houff of the Army Map Service.

The Military Grid Reference System (MGRS) has existed ever since the UTM was originally published. It had its origin in the "British Grids," most of which had an alphabetic or alphabetic-numeric system for identifying the 500,000-meter (or yard) and 100,000-meter (or yard) grid square.

John W. Hager

We want your feedback.
Letters to the Editors should be submitted to kimt@asprs.org. Please include your name and contact information with each letter. Your name will be printed with your letter but the contact information will not be published.

CORRECTION

The peer reviewed paper in the January 2008 issue "The Influence of DEM Accuracy on Topographic Correction of Ikonos Satellite Images" by Janet Nichol and Law Kin Hang contained an error in Table 3. The corrected version of the Table follows.

Table 3. Radiance values of herbaceous and forest cover types for the two-stage normalized image

	Original		NN		NN with smoothing 3*3		NN with smoothing 7*7		NN with slope		Sibson		Sibson with slope		TIN		TOPOGRID	
									Herbaceous									
Band	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ
1	72.60	1.62	72.93	1.34	72.79	1.54	73.59	1.26	72.77	1.53	72.86	1.26	72.83	1.28	72.96	1.22	72.8	1.4
2	62.62	2.69	63.50	2.45	63.72	2.57	65.33	2.45	63.53	2.45	63.41	1.88	63.32	1.87	63.45	1.89	63.2	2
3	40.41	2.86	41.36	2.60	41.36	2.72	43.36	2.64	41.19	2.61	41.21	1.99	41.11	2.01	41.24	1.98	41	2
4	89.27	7.21	92.25	8.44	95.72	11.28	98.37	9.80	92.03	7.30	92.20	6.64	91.84	6.27	92.32	6.69	91.5	6.6
									Forest									
Band	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ
1	68.82	1.66	69.11	1.56	68.89	1.60	69.78	1.64	68.87	1.59	69.07	1.47	69.05	1.46	69.15	1.48	70	1.6
2	54.72	2.40	55.44	2.22	55.09	2.19	57.13	2.57	54.97	2.07	55.40	1.83	55.35	1.80	55.42	1.83	55.1	2
3	33.40	2.00	34.15	2.11	33.70	1.83	35.91	2.70	33.60	1.72	34.07	1.59	34.01	1.55	34.07	1.60	33.8	1.7
4	84.20	11.75	86.44	9.31	86.08	11.30	92.32	9.55	84.79	9.32	86.53	8.17	86.37	8.31	86.54	8.25	85.2	9