

**The Lop Nur Potash Mining Facility  
in the Northeast of the Taklimakan Desert, China**

**edited by**

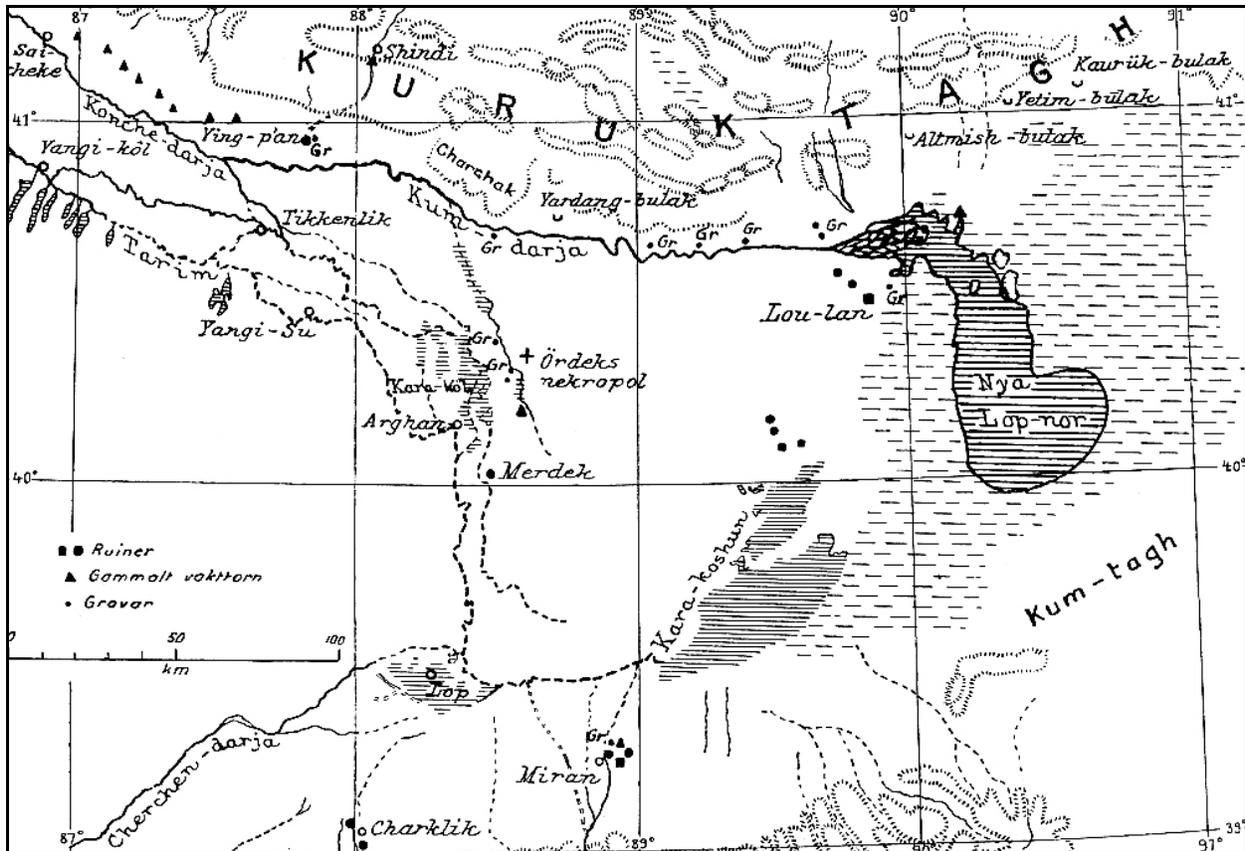
**David L. Alles**

**Western Washington University**

**e-mail: [alles@biol.wvu.edu](mailto:alles@biol.wvu.edu)**

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Note: In PDF format most of the images in this web paper  
can be enlarged for greater detail.



**Map of the Lop Nur region by Folke Bergman 1935**

During the early and middle Pleistocene epoch, this area held a large brackish lake. Uplift of the northern part of the lake in the late Pleistocene created hollows that became receptacles for potash deposition. The main potash deposits found at Lop Nur today are brine potash.

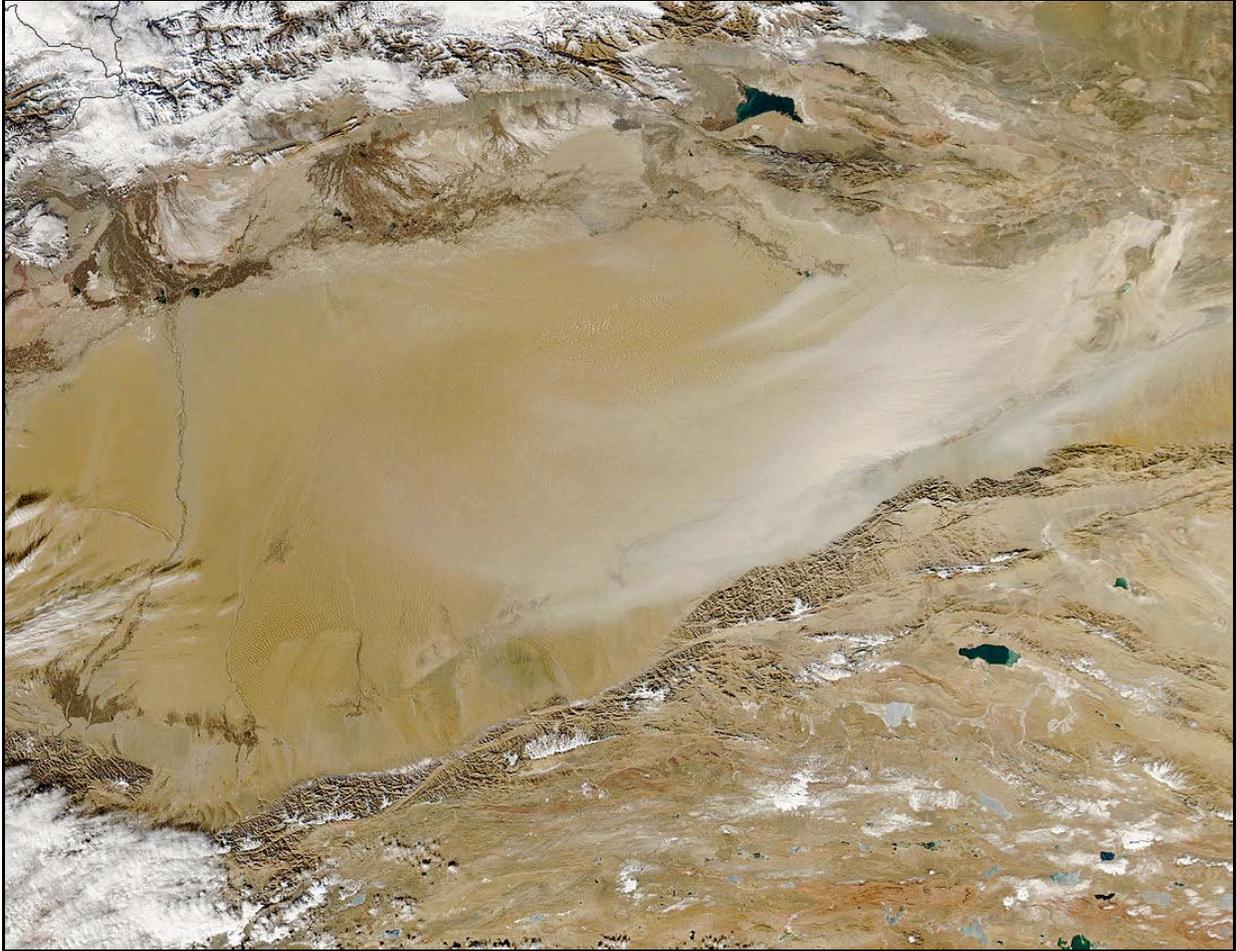
*China to Tap Sylvite Resources in Lop Nur*. People's Daily Online, 2001-3-22

"In 2000, Xinjiang's geology and mineral departments discovered a underground water source in the hinterland of Lop Nur, which could produce ~10 million cubic meters of water annually mainly in the form of brine potash. Geologists estimated that the potential value of the potash resources in Lop Nur will surpass 500 billion yuan (60.24 billion US dollars).

Current plans are to raise potash production capacity in Lop Nur to at least 200,000 tons annually within five to 10 years, which will greatly ease the shortages of kali salt and potash fertilizer in China and promote the development of agricultural economy. At present, China needs 5 million tons of potash fertilizer annually compared with its output of 800,000 tons yearly in 2000."

Web Reference

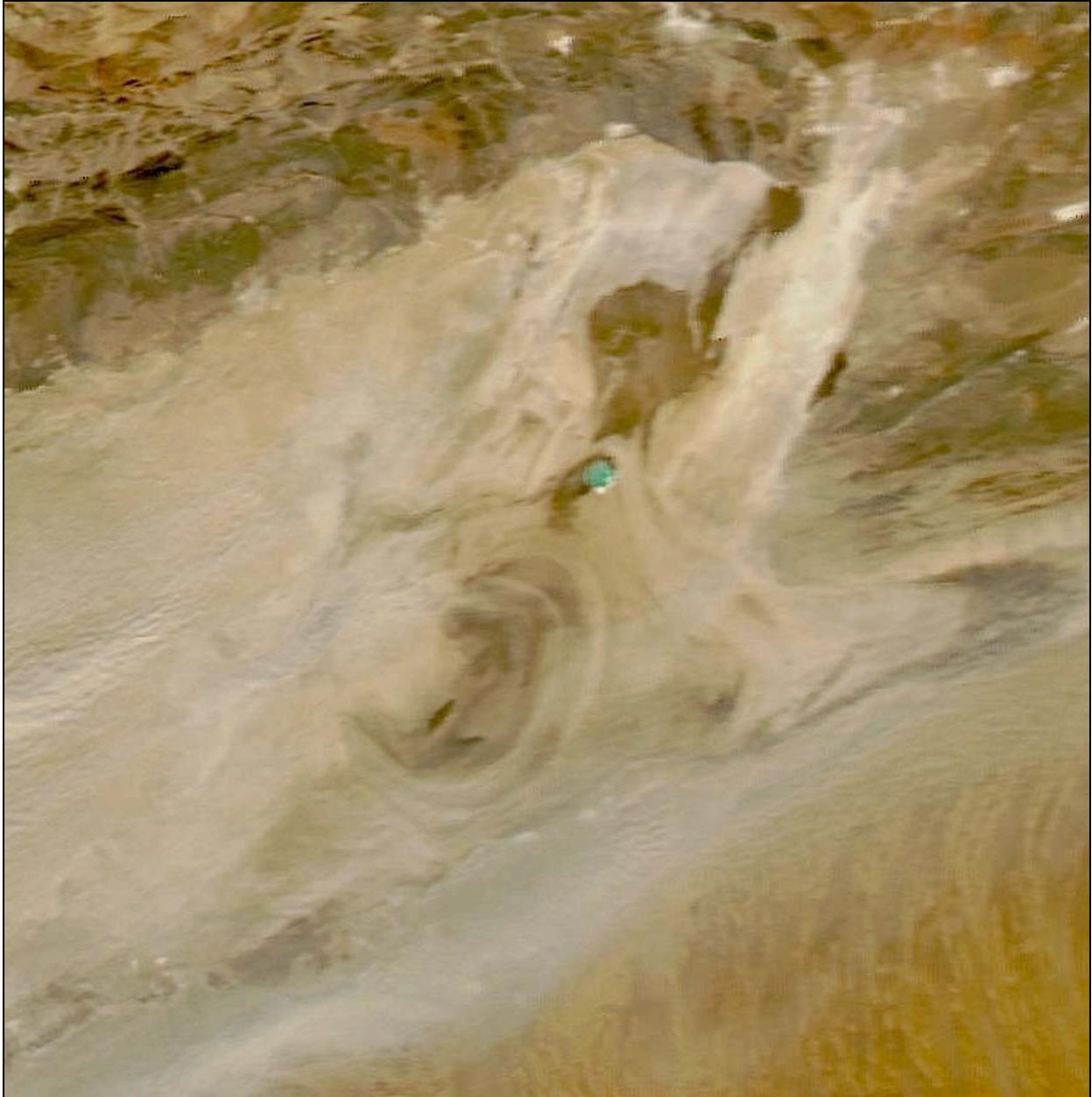
<http://en.wikipedia.org/wiki/Potash>



**The Tarim Basin and Taklimakan Desert in Northwest China 2005**

The Lop Nur region is shown far left above center in the image.

Image 2005-12-3 NASA Gallery MODIS Aqua 250m



### **Lop Nur Potash Plant in 2005**

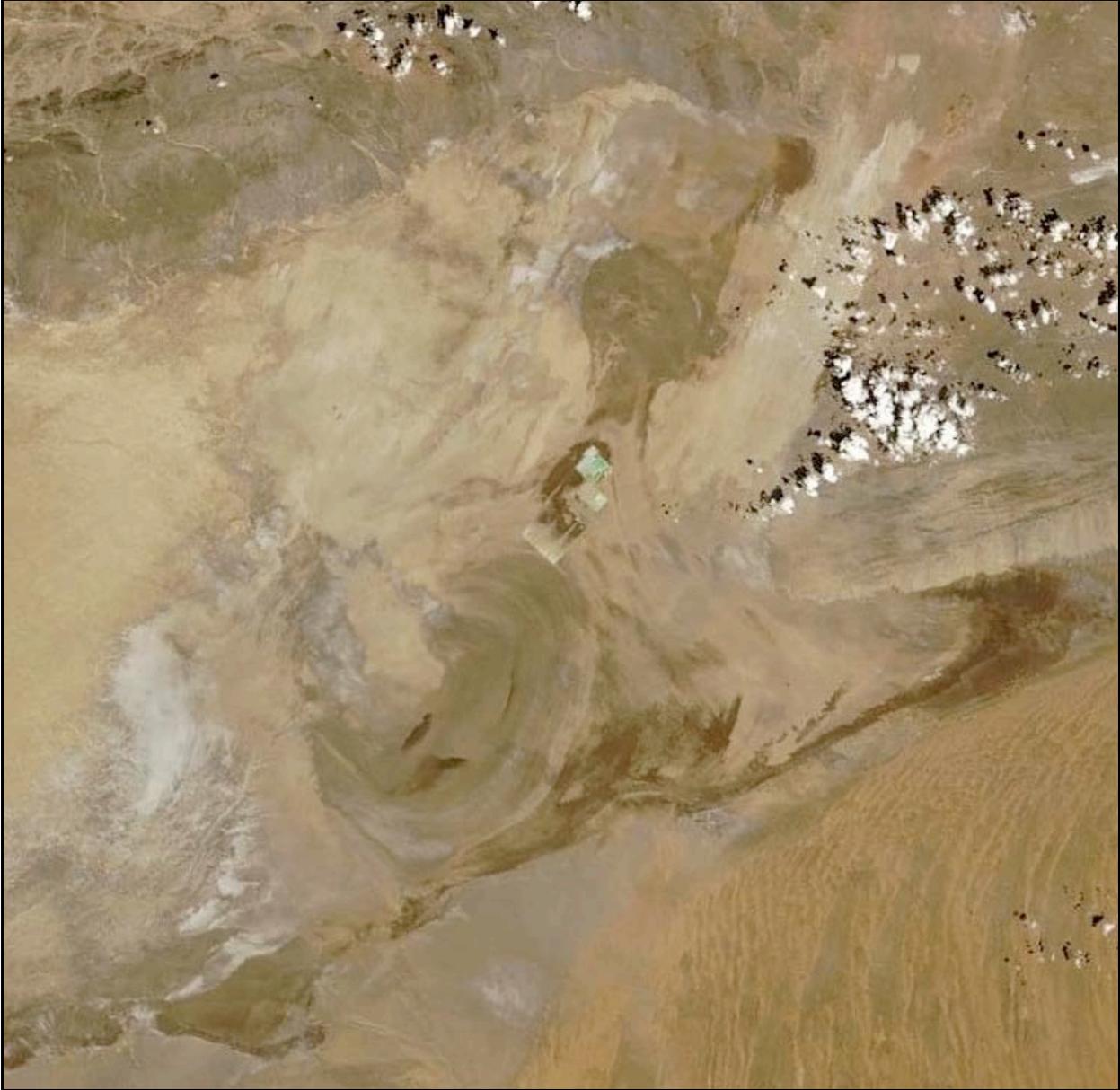
This image is of the far eastern Tarim basin including the Lop Nur region. Note in the image the turquoise dot which is the beginnings of the potash plant just northeast of Lop Nur's ear shaped main basin, and the Kumtag (Kum-Tagh) Desert southeast in the lower right with its yellowish linear dunes.

Image 2005-12-3 NASA Gallery MODIS Aqua 250m (cropped)



**The Lop Nur Potash Plant in 2006**

Image 2006-6-9 NASA MODIS Terra 500m (cropped)



### **The Lop Nur Potash Plant in 2007**

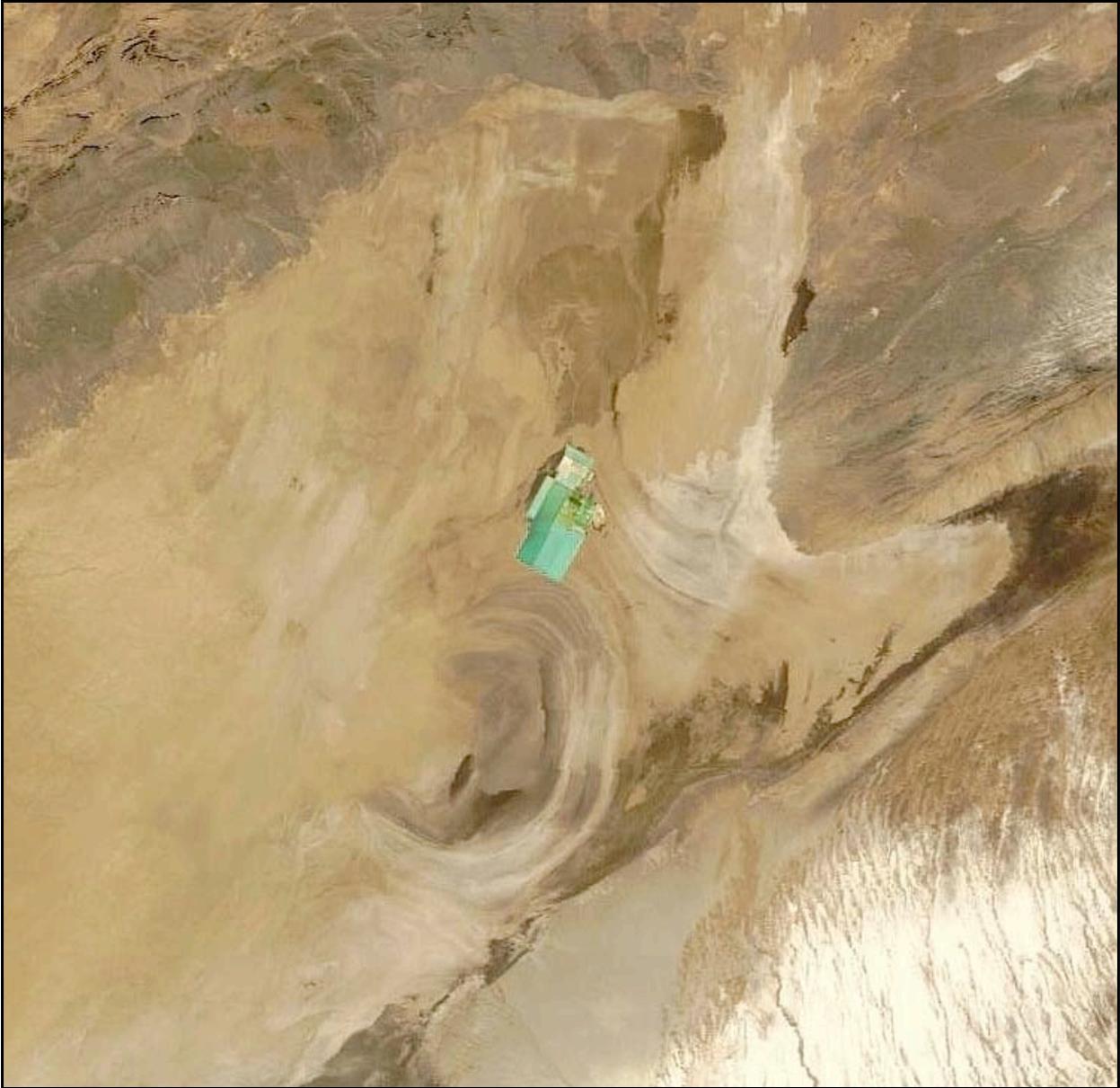
The project was originally announced in the news in March of 2001. The original plans were to reach a production level of 200,000 tons of potash within 5 to 10 years.

Image 2007-7-21 NASA MODIS Terra 250m (cropped)



**The Lop Nur Potash Plant in 2008**

Image 2008-11-12 NASA MODIS Terra 250m (cropped)



**The Lop Nur Potash Plant in 2009**

Image 2009-11-24 NASA MODIS Terra 250m (cropped)



**The Lop Nur Potash Mine in 2010**

Image 2010-1-7 NASA MODIS Aqua 250m (cropped)



**The Lop Nur Potash Plant in 2011**

Image 2011-8-24 NASA MODIS Terra 500m (cropped)



**The Lop Nur Potash Plant in 2012**

Image 2012-9-29 NASA MODIS Terra, 250m (cropped)



The discovery of potash at Lop Nur in the mid-1990s turned the area into a large-scale mining operation. The ALI instrument on NASA's EO-1 satellite captured this natural-color image of Lop Nur on **May 17, 2011**. The rectangular shapes in this image show the bright colors characteristic of solar evaporation ponds. The main potash deposits mined at Lop Nur are potash brines. The brines are pumped to the surface and then to the evaporation ponds in steps until the brines can be recovered as potash. This process is what gives each pond a different color.

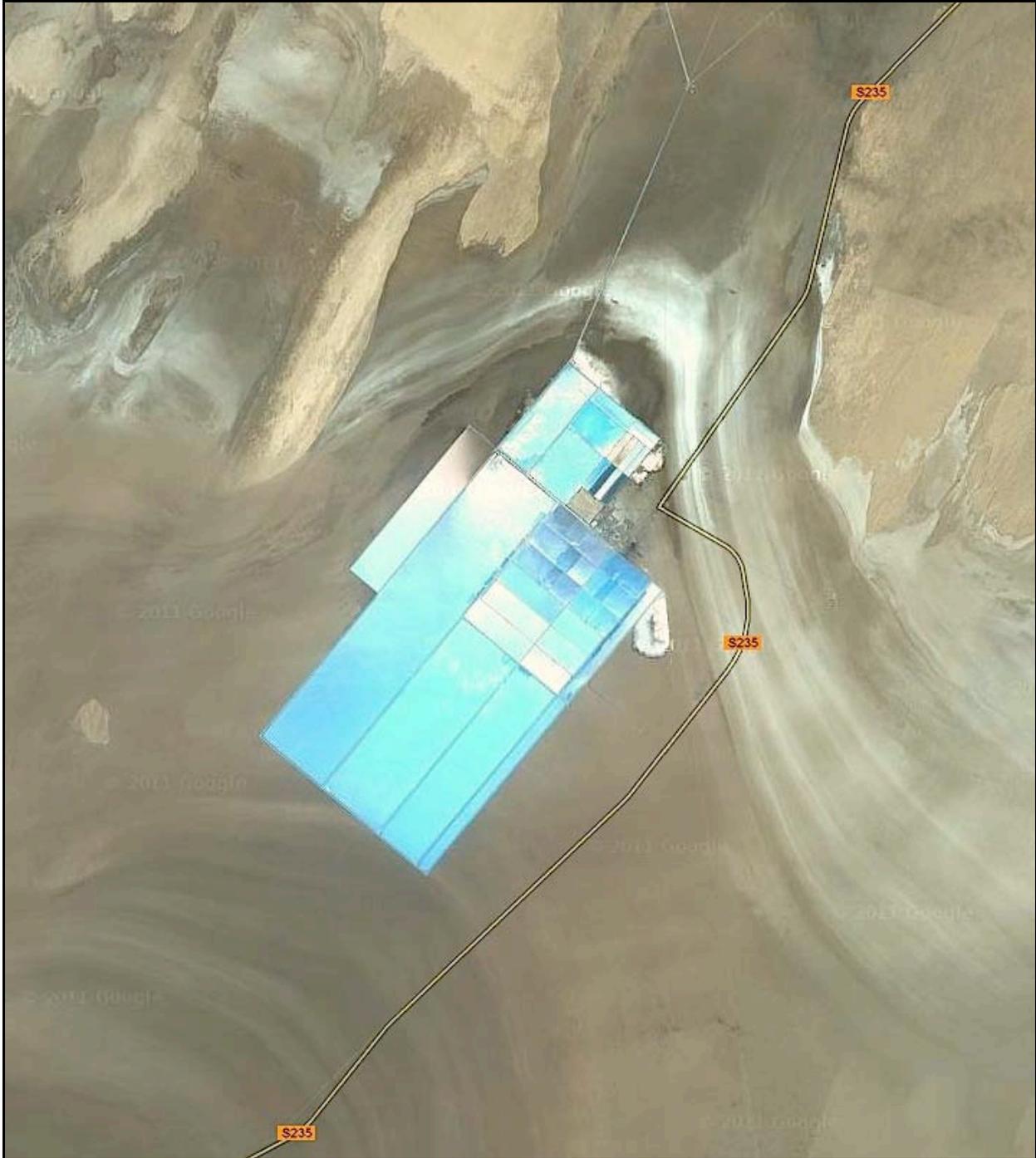
Web Reference

<http://earthobservatory.nasa.gov/IOTD/view.php?id=51039>



### **Evaporation Ponds in Moab Utah, USA**

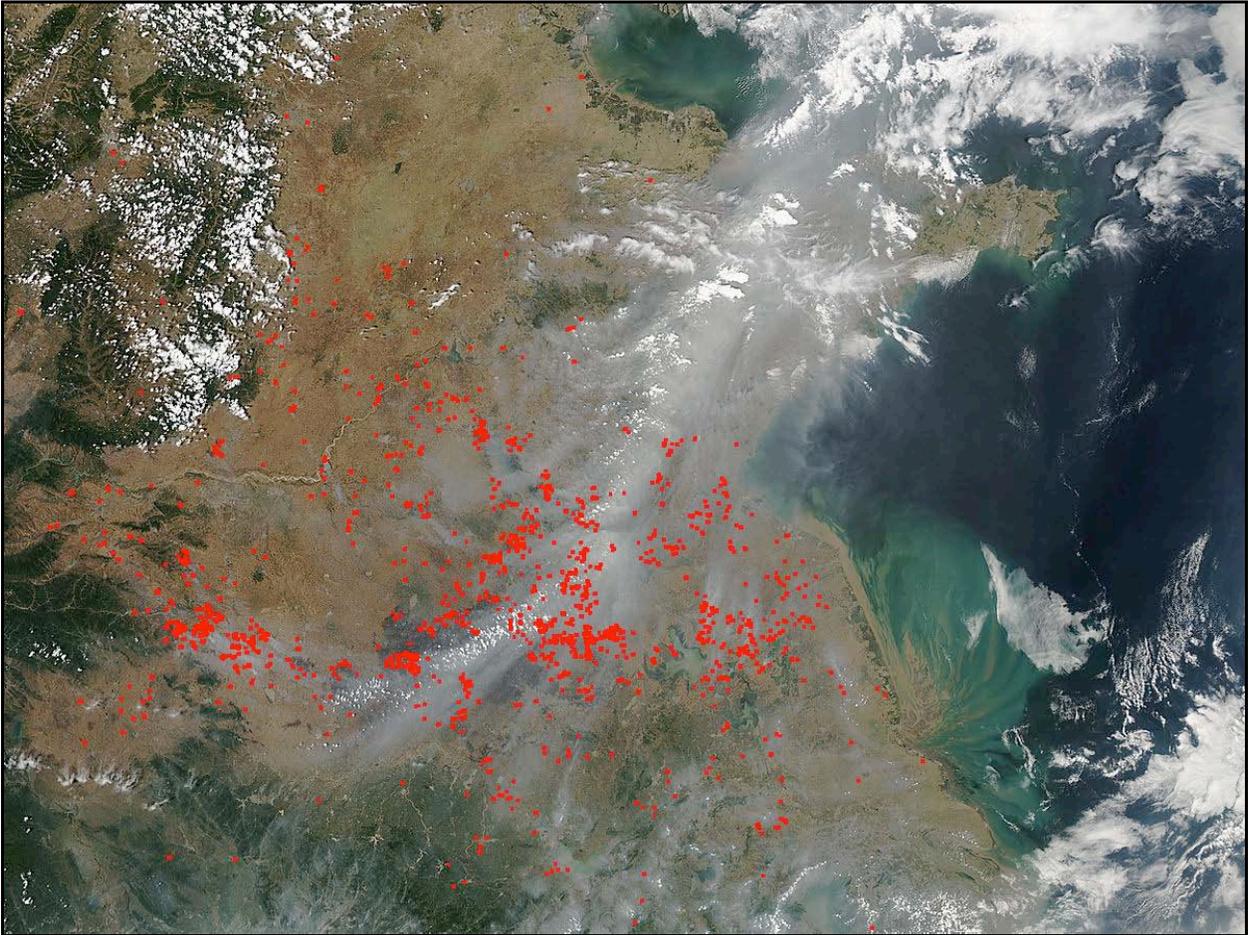
An aerial view of evaporation ponds at the potash plant near Moab, Utah. In a process very similar to the Lop Nur mine, brines are pumped up from deep below the surface. Then the solution is concentrated in evaporation ponds. Potash is then extracted and is used mainly as a chemical fertilizer.



**Google Map Image 2012-8-17-Lop Nur Potash Plant**

In this image notice that, after years of construction, Highway S235 from Kumul (Hami) to Ruoqiang runs to the plant facility.

— Postscript —



**2012-6-13 Earth Observatory: Wheat Fires and Smoke in Eastern China**

Lop Nur is one of the most dangerous areas in the Tarim Basin because of its total lack of surface water and extreme temperatures. So why build a potash mine in the middle of one of the worlds most inhospitable places? The answer lies in whether or not China can feed its own people with the resources available within its borders. With the world's largest population of in excess of 1.3 billion people, the answer is — no. It is this fact that has pushed China to mine the potash deposits of Lop Nur.

In 2000, China needed 5 million tons of potash fertilizer annually compared with its output of 800,000 tons yearly in 2000, with the balance being purchased abroad. The original projection was for Lop Nur to at least supply 200,000 tons annually within five to 10 years.

Why do the farmers of eastern China burn their fields after harvest? To return some of the nutrients of the harvest stubble to the ground as fertilizer. This ancient practice, however, serves only to exacerbate China's already polluted air.

Web Reference: <http://earthobservatory.nasa.gov/IOTD/view.php?id=78256>

## References

*China to Tap Sylvite Resources in Lop Nur*. People's Daily Online, March 22, 2001, People's Daily. Download a PDF copy at:

[http://english.peopledaily.com.cn/english/200103/22/print20010322\\_65719.html](http://english.peopledaily.com.cn/english/200103/22/print20010322_65719.html)

Earth Observatory Lop Nur, Xinjiang, China, June 19, 2011

<http://earthobservatory.nasa.gov/IOTD/view.php?id=51039>

Liu, C. (2008). Characteristics and formation of the potash deposits in Lop Nur salt lake, Xinjiang, China. International Geological Congress. Accessed June 15, 2011.

<http://www.cprm.gov.br/33IGC/1340127.html>

Ma, C.M., Wang, F.B., Cao, Q.Y., Xia, X.C., Li, S.F., Li, X.S. (2008). Climate and environment reconstruction during the Medieval Warm Period in Lop Nur of Xinjiang, China. Chinese Science Bulletin, 53(19), 3016–3027.

<http://www.springerlink.com/content/560466864g104327/?MUD=MP>

## Notes

1. Sylvite is one of the last evaporite minerals to precipitate out of solution. As such, it is only found in very dry saline areas such as Lop Nur and Moab Utah. Its principal use is as a potassium fertilizer such as potash. <http://en.wikipedia.org/wiki/Evaporite>

2. The Lop Nur site is the second-largest source of potash in China.