Military space systems

Military interests were an important reason to why the so-called space race started. Both USA and the Soviet Union were very interested in the possibilities space offered for arms and supervision. A vital condition for a military operation to succeed is that you have current and accurate information about your target; maps, weather conditions and so on. Satellites have meant a huge breakthrough for the possibilities of getting this kind of information. For example, NATO's war against Serbia this spring was largely planned with the aid of satellite photographs. Still the accuracy of the bombings have sometimes left a lot to wish for, perhaps the NATO generals could use a phonebook…
Another field of application for satellites is to scout for enemy weapon resources. Earlier, special spy planes (e.g. the U-2) were used for this purpose. But these planes required a pilot who risked getting shot down and killed or captured. Besides, it's a lot easier to shoot down a plane than a satellite.

The Corona project

In 1953, the American air force began a project called WS-117L of which purpose was to produce a satellite that could take pictures of strategic locations from space. Five years later, WS-117L was officially cancelled in an attempt to shut information holes. In reality the project never seized, it just changed name to Corona. On February 28th 1959, Discoverer I -- the first satellite in the Corona series -- was launched. But something went terribly wrong and the satellite soon plunged back into the atmosphere. Following the trend set by Discoverer I, the first twelve Corona-probes failed their mission on some point. Finally, on August 10th 1960 Discoverer 13 was salvaged after a successful mission. The next probe, Discoverer 14 returned with about 10 kg of film that it had taken over Soviet territory. The pictures were not of the same quality that you'd get from the U-2's cameras, but one could now get pictures of areas that were unreachable by spy planes for practical reasons. On May 31st 1972, the last of the Corona probes was salvaged. Under the lifespan of the project, nearly 300 km^2 of the earth's surface had been mapped out, mainly Soviet and Chinese territory. The level of detail in the pictures had gone from about 6 m to 1,5 m. The pictures showed that the U.S fear regarding the size of the Soviet nuclear weapons arsenal was strongly exaggerated. In 1967, the U.S president, Lyndon B Johnson said that the photographs they had gotten from the satellites were well worth the 35-40 billion dollars that had been spent on the space projects. Now they knew the truth about the Soviets military might, and that they didn't have too much to worry about. However, it wasn't until 1978 that president Jimmy Carter officially admitted that the U.S was using satellites for photographic surveillance. And in 1995, Bill Clinton gave the final order to declassify all information about the Corona project.

SAMOS and MIDAS

Apart from Corona the U.S also had other projects for the purpose of surveying the enemy's (read Soviet's) weaponry resources and warn about incoming robots. Satellite And Missile Observation System (SAMOS) was meant to orbit the earth and send pictures to stations down on earth via radio. SAMOS I was due for launch to October 1960 but it never came off because of problems with a bearing rocket. SAMOS II was launched in January 1961 and functioned for one month. Missile Defense Alarm System (MIDAS) was supposed to warn for incoming robots so that the U.S military would have time to prepare for the attack and plan their response. However it turned out to have flaws that led to false alarms. Because of this, it was reduced in status to a technique development project in 1961.

Who cut the cheese?

In 1963, the U.S launched the first two satellites in the Vela-series, which were designed to register eventual nuclear weapon explosions. This was the same that a treaty banning nuclear weapon tests in the atmosphere, in outer space and under water was agreed upon. Both USA and the Soviet Union signed this treaty, while e.g. France did not. In October 1979, reports came in from American media saying that satellites had registered a nuclear explosion near South Africa. Speculation included a joint a-bomb effort by Israel and South Africa, and an accident aboard a Soviet atomic submarine. Both these theories were denied by the respective governments.

A rat in the system

In 1978, an ex. CIA agent, William Kampiles sold a handbook regarding a new type of spy satellite, the KeyHole-11 (KH-11) to Soviet. For this Kampiles received $3000 from the Soviet Union and 40 years of incarceration from the U.S. This event led to actions in order to protect the usability of the KH system.

Soviet satellites

As far as the Soviet Union is concerned, their whole launching schedules were completely dominated by surveillance satellites. The Soviets used reliable probes of Vostok type and thereby avoided the kind of costly and humiliating failures that the American air force suffered with their Corona probes. The first surveillance satellite launched by the Soviets was Kosmos IV, in 1962. The probe completed its mission successfully and could be salvaged three days later. The Soviets didn't want the satellites to get into the wrong hands and therefore switched to let the satellites drop the film in capsules. Then if the satellite's break rockets failed or if it got into the wrong orbit, the satellite could be destroyed from earth. Since 1976 the Soviets have been using a larger and more advanced type of surveillance satellite, allegedly based on a modified Sojous probe. Kosmos 758 was the first satellite of this type that was launched. These satellites were then followed by an even larger model; the military version of the space station Saljut. This satellite orbits on a relatively low altitude (250 km, compared to 350 km for the research version) and can take very high-resolution photographs.

Star Wars

As a consequence of all these surveillance satellites, much effort has been put into developing anti-satellite systems (ASAT). These were specifically developed in an attempt to destroy satellites or damage their functionality. Both USA and the Soviet Union made attempts to construct such systems in the 60s, but USA seized these projects after a couple of years because they considered the technical obstacles too large. However, development was resumed in the late 70s when the U.S military was getting worried about the Soviets' progress in the field. Furthermore, the plans had become technically and financially feasible. Both the Americans and the Soviets had ideas about using high-power lasers as an anti-satellite and anti-robot weapon. These would destroy their targets using laser pulses with enormous amounts of energy. One of the problems with lasers is that the beam becomes slightly diffused when it enters the atmosphere, and thereby loses some of their efficiency. The dangers of ASAT has been discussed on many occasions. Is a country entitled to do physical harm (i.e. destroy) others' satellites just because they suspect that it might constitute a threat? In 1967 a treaty was signed by both USA and the Soviet Union which prohibits the signing parties from placing weapons of mass destruction in orbit around the earth, on the moon or any other celestial body, or in space itself. Another treaty was signed in 1972 which prohibits USA and the Soviet Union from placing laser- and particle-beam based anti-robot weapons in space.

Conclusion

Surveillance satellites has made it possible to get very high-resolution pictures with little risk of getting caught, or at least shot down. You can see this as trespassing someone else's back yard, or as the ultimate evidence of the conflict between the two superpowers where they constantly felt they had to cast a furtive glance at one another. In any case, these satellites are essential for seeing to that the nuclear arms reduction treaties are obeyed, among other things. They have also played an important role in international crises, like the one between China and the Soviet Union in 1969, or the present one between NATO and Serbia. The surveillance satellites will be with us in the future, whether we like it or not.

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