ment when it appears at the horizon till the moment when it disappears behind the horizon, can be made nowadays using many programs for personal computers. I most frequently use a simple Windows program called SatWin [10, 24]. A version of SatWin was also written for MS-DOS and can be run on older personal computers of the DX486 type. Both these programs can be downloaded free of charge together with up-to-date Keplerian elements at the following address: http://www.emgola.cz/. You will also find other information about the activities of satellites plus the signals that you can receive and decode using the receiver described in the following article. Pictures are transmitted continuously from polar satellites without beginning or ending. When the satellite appears over the horizon, the edge of the pictures is slightly cramped, gradually resolution of details in the picture improves. At the end of orbit the signal gets weaker and the picture begins to disappear in noise as the satellite slips behind the skyline.

Inclination is the angle made by the plane of satellites orbit and equatorial plane. A satellite that passes over both poles (on so called polar orbit) has the inclination of 90°. The inclination of American satellites NOAA 10-16 is 98°, their period is approximately 102 minutes and height of satellite is approximately 820 - 850 kilometres.

Signals from the satellites are in WEFAX format (Weather Faximile). This is an old, but still useful, system for transmission of black and white visual information using a standard audio channel where a change of amplitude of the 2400Hz sub carrier represents the level of the video signal brightness. Maximum modulation (black) is not zero, but approximately 5%, white is then approximately 87%. This audio signal is frequency modulated on the main carrier, e.g. 137.50MHz for the satellite NOAA 15. After demodulation by the FM receiver we therefore obtain an amplitude modulated tone of 2400Hz. This signal is sent to the input of standard sound card in a PC and processed by a software decoder such as JVComm32 which can be downloaded from http://www.jvcomm.de/. JVComm32 even handles bad quality demodulated signals due to the efficient digital filters. The result of this processing is shown in Fig 12 as picture displayed on a computer monitor.

Transmission of images from NOAA satellites are composed of lines lasting 0.5 second, which correspond with data from sensors. They provide one picture of the Earth surface containing data from two channels. Channel A transmits picture in the visible spectrum (VIS) and channel B transmits picture in the infrared spectrum (IR). Each line contains time multiplexed data from both channels and is composed of separation tones interlaced with picture modulation. Data from channel A is preceded by and short impulse of 1040Hz and similarly data from channel B are preceded by and short impulse of 832Hz. Each line also contains a calibration sequence. Thanks to this the decoding program can display only the chosen type of picture. You will find more detailed information at http://www.noaa.gov/. You will find up-to-date information about Russian satellites METEOR, OKEAN, RESURS at http://sputnik.infospace.ru/. These satellites have higher orbit than that of NOAA satellites (1200 km). For example inclination of satellites METEOR is 82° and their period is 115 min. The system of picture transmission from METEOR satellites is compatible, however slightly different, from that of NOAA satellites. Modulation is similar, but pictures contain only one photo with higher resolution. Edges of lines contain sets of phasing lines (alternately black and white), the lines mark end of picture and greyscale. Pictures in the infrared spectrum do not contain the greyscale. The pictures are also inverted as in comparison with NOAA pictures. Photos from NOAA satellites show warmer places by darker shade and colder places are brighter. The