Studies have shown the fundamental possibility of determining the tritium in the air in small amounts 0.8 Bq/m³ and less. In some cases it is observed at a distance more than 100 meters from the epicenter of the tunnels.

In the territory of Degelen, nineteen tunnels were drilled for geological and geotechnical investigations. Tritium concentration was carried out in the different area of tunnels. The sampling of water vapor was done before wells drilling and just after it in the length of the tunnels is from 170 m to 700 m, close to hydrogeological wells which was drilled into the body of tunnels, located on a cross of hill - 2, also on the top of hill at the epicenter area for a height of about 700 m - 7 and at the near-tunnels-area sites at the distance of 50 m from the portals of tunnels - figure 2. The tritium distributions in the air in the tunnels is showed on the picture 2a. The eight tunnels without water course have been chosen for research of tritium distribution in the air inside of tunnels. Concentrations of tritium in the tunnels has exponential dependence on the distance. As the distance from the tunnels’ portals increases the tritium concentration in the air gets higher and maximum concentration in the air on this area can be caused by tritium emitting from the explosions center.

On the picture 3b it is observed that tritium concentration on the air near to hydrogeological wells. The wells were located at the distance of about 400 m from the tunnel. The sampling of tritium was done here for 60 years after creation of the tunnels. The analysis of results shows that tritium can pass via the rock, through the rocks, without any stop up.

It should be noted that background activity of tritium in the atmospheric air within the Degelen site is 2 Bq/m³ in accordance with many researches conducted on this territory.

Tritium concentration in the air close to hydrological wells is showed on the picture 5. Tritium concentration in the air is showed on the picture 6. On the picture 7 it is showed the scheme of sampling of tritium concentration. On the picture 8 it is showed the comparison of tritium concentration in the air in the tunnels and concentrations in the soil air about the place of explosion. Tritium concentration in the air is showed in the range from 0.2 to 4 Bq/m³ (Figure 4). It should be noted that some all of these fifteen tunnels are closed now by special complex of materials and there are no any other sources of tritium at this territory.

The results of analysis allowed us to get very important information about tritium concentration in the air the venue of nuclear tests and also in accordance with those results we could use the possibility to use the tritium as an indicator of the place where underground explosions were conducted. After more than 20 years we can determine numerical data about tritium concentration in the atmospheric and soil air at territories which are located not only in close proximity to place of explosion but also at the remote distance and on a par with the chemical inert materials and so on.

The water vapor sampling of soil was conducted in a tunnel making it possible to isolate the entry of atmospheric air to the collected sample. Scheme of sampling of water vapor at the territory of the near-wells-area is showed on the picture 7.