



The "Greifswald Lights"

Example for a class B UFO report by the Society for Scientific
Investigation of Anomalous Atmospheric and Radar
Phenomena,
MUFON-CES, Inc.

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On August 24, 1990, many independent witnesses observed formations of luminous spheres in the sky near the city of Greifswald, located close to the coast of the Baltic Sea. Many eyewitness reports backed up by videos and photographs make this case one of the best documented sightings in Europe.

Although the degree of strangeness in this case is not very high, no scientific explanation has been found to date. Some skeptics have tried to reduce the characteristics of this phenomenon to known one. But, so far, no one has successfully explained all the data observed and documented. The skeptics seem to be satisfied with any possible explanation. But from a scientific point of view a possibility is only the starting point for gathering evidence and the search for confirmation. In the "Greifswald case" no convincing explanations for any hypothesis could be found.

Many sightings of what appeared to be groups of luminous spheres were reported in the early days of of August 1990 from the coast of the Baltic Sea between the cities of Rostock, Greifswald and the Isle of Ruegen and Usedom. These lights displayed unusual behavior contrary to airplanes, balloons, luminous ammunition and atmospherical phenomena. The movements of these lights appeared inconsistent with known objects, their acceleration seemed too rapid and abrupt.

Mr. Gerald Schwab, a tourist from Berlin, described his observations to a German newspaper. He stated that: "They stood there for three minutes before they accelerated rapidly forward" (Bild", Aug. 31, 1990).

On Aug. 24, 1990, the lights hovered in the sky north-east of Greifswald for a relatively long period of time. Hundreds of tourists and local residents from Greifswald, Rostock, the Isle of Ruegen, the Isle of Usedom and Neubrandenburg observed, photographed and filmed the phenomena. (Fig. 1).

The information contained in the reports from many witnesses was confirmed by many video films and photographs. These are considered as measuring protocols in a scientific sense. Even if the individual protocols were not taken under scientific conditions, they were done well enough for further scientific analyses.

The MUFON-CES photo-analysis team received six videos and 11 photographs from different individuals and interviewed more than a dozen witnesses personally. None of the people interviewed had observed the phenomenon from the beginning, neither could anyone remember the exact starting time for their individual observations. However, several of the cameras used indicate a time code which is displayed on the movie.

This allowed us to conclude that the phenomena consisted of two groups of luminous spheres which hovered nearly motionless for about 30 minutes between 8:30 p.m. and 9:00 p.m. over the Pommernian Sea (14°10' eastern longitude, 54°25' northern latitude). The brighter and closer group (at an altitude of about 13°) formed a circle of 6 luminous spheres. The second group (at an altitude of about 20° as seen from Greifswald) formed the shape of a "Y" (later referred to as the Y-formation) (Fig. 2).

One group of witnesses consisted of 40 schoolboys and teachers who viewed the objects from a distance of about 30 km. The boys were spending their vacation in Mukran on the Isle of Ruegen. They observed that the objects in the Y-formation were not stationary but performed individual movements within the group. One of the boys confirmed that some smaller objects had moved back and forth between the two groups of lights.

At the time of the phenomenon, the sun was located 8° below the horizon and illuminated the lower clouds. The moon was still about 90° below the horizon. The German Weather Service in Rostock reported that approximately $5/8$ of the sky was covered with a formation of high, fleecy clouds in round, white or grayish, partly shaded masses, as well as a formation of gray or bluish sheetlike clouds at a minimum altitude of 2,500 meters. There was a light east north-east wind, and the temperature was about 60° F.

Ludmilla Ivanova, a medical doctor, and her husband, project engineer Nicolai Ivanov, filmed the objects from their third-floor balcony with an Orion video camera (LP 11.7 mm/s, Fuji Super HG EF-30, VHS-PAL).

Mrs Vinogradova, living with her husband Valery in the same house on the second floor, was alerted by the noisy children in the street. She said it sounded as if they were observing something very unusual. Through the window she saw about 50 people looking at the sky. She noticed two luminous groups of lights in the sky and proceeded to call her husband, who works as a translator. He took a photo at the moment when two objects joined a formation of three lights that were already present (Camera: Zenith-E; Lens: Industar 50 mm; film: SweMA-G5Gost, 18° DIN). This group of objects later formed a ring of 7 luminous spheres. The ring-shaped group disappeared after being clearly visible for a few minutes.

The other group, higher up and further away, was not clearly visible at the beginning. As the ring-shaped group disappeared, the Y-formation became focused and clear. At first there were only 4 objects in this group, forming a cross. Then 2 more came shooting toward it and a little while later another object appeared between the upper lights. Ludmilla Ivanova filmed for about 4 minutes, but the group was still visible for another 15 minutes. The objects seemed to rotate about their axes.

Both formations were observed from Trassenheide around 8:40 p.m. by Mr. Rainer Ladwig, who was walking on the beach with his family when he spotted the lights. He went to get his camera (Yashica, 300-fold optics) and managed to take a few pictures with automatic exposure at one second. These images are blurred, but Mr. Ladwig also took a picture without the automatic feature. (Fig. 3).

The exposure time was too short to get a bright enough photo. However, this under-exposed photo turned out to be very good, i.e. the best, for a computer analysis. The lights in this photo that Mr. Ladwig spots are not bright, but they show a structured contrast (Fig. 6).

Another photo that Mr. Ladwig took that night captured a reflection of the lights in the water. Therefore it could not have been a mirage. Witnesses who viewed the lights from Trassenheide reported that the Y-formation appeared to be as bright as the full

moon. The lights were clearly visible even from the 100 km distant Neubrandenburg. Therefore the lights could not have been hot-air balloons.

Mr Luchterhand, who lives in Berlin, was driving with his family about 6 km south of Greifswald's nuclear power plant when he spotted the lights. He stopped his car and filmed the formations with his father-in-law's video camera (Canon, 8-fold zoom). Their distance to the Y-formation was about 25 km. At about 8:45 p.m. the lights in the ring-shaped formation, which seemed to rotate slowly in a clockwise direction, faded away. Some interesting comments from the witnesses were also recorded on the video. For example, one can hear Mr. Luchterhand exclaim: "I don't believe in UFOs and such nonsense, but I have never seen anything like this in my whole life."

On October 24, 1994, one of the two major TV networks in Germany, the ARD, transmitted a documentary with the title: "UFOs - They Do Exist." This broadcast, which was based on the book "The Status of UFO Research" by I. von Ludwiger, included a report about the Greifswald sightings. After the broadcast more people contacted MUFON-CES and reported their observations of the light formations.

Mr. and Mrs. Groeschel provided a 15-minute video of the lights. They witnessed the phenomena while they were staying in the village of Uckeritz on the Isle of Usedom. It can clearly be seen in the video that the Y-formation drifted with the wind (15 km/h) toward Peenemuende. Peenemuende was the former production facility for V-2 rockets, and at the time a Russian military base. Since this video camera was very light-sensitive, the cloud background in the movie is sufficiently bright and clear to reveal minor details. This enabled us to rule out a few possible explanations. The lights could not have been caused by luminous ammunition or light bombs, because they all burn only between 3 minutes and a maximum of 10 minutes and they would have parachutes attached to them, which would have shown up on this video (Fig. 7).

Five photos were submitted for photoanalysis by the pilot Gerald D. He took the photos of the objects north of Greifswald. He wrote that he was very impressed when the smaller objects approached the Y-formation, with what he estimated as supersonic velocity, and came to a dead stop when they reached the formation. Drape noted: "Because of their specific flight movements one must conclude that these objects flew under intelligent control."

In February 1995, the photoanalysis team received a 6th video recording of the lights from Mr Stoffers. He filmed the phenomena from Zinnowitz on the Isle of Ruegen, which was only about 10 km from the lights. On his film luminous clouds are visible between the light spheres, they look like pyrotechnical smoke (Fig. 5).

Some of the witnesses reported that at about 8:47 p.m. they observed a sudden flash of light about 100 m away from the Y-group but at approximately the same altitude. This could be observed on the videos made by Dr. Ivanova and Mr. Luchterhand. The flash looks like an explosion of a surface-to-air missile, but no explosive sound was reported by the witnesses interviewed. The diameter of the flash on the film is four times larger than that of the brightest of the lights, and it diminished during 1/8 of a second to nothing.

One possible explanation could be that perhaps the former East German National People's Army fired at the objects. They were reportedly holding military maneuvers

at the time in the region. Subsequent inquiries could not discover a responsible party. Lieutenant General Berger, the former commander of the NVA Air Force, declared that the Soviets had closed all those military installations and were no longer active in the area.

At about 9:00 p.m. the objects faded away one after the other, like luminous ammunition would (Fig. 4). However, after a few minutes, the Y-formation suddenly reappeared somewhat to the north-east of the first location with nearly the same shape and seemingly brighter and bigger to the witnesses on the Isle of Ruegen. The reappearance was noticed by witnesses on Ruegen and in Neubrandenburg, which is about 100 km away. No videos were submitted which show the second appearance of the objects. He reappearance lasted for about one or two minutes, according to the witnesses, before it disappeared.

The size of the objects can be estimated by triangulation. From the data obtained, two items could be utilized to calculate the distance: The line of sight from Greifswald and from Posetitz on the Isle of Ruegen. It was concluded from this that the Y-formation was about 30 km from Greifswald. It hovered at an altitude of 6,500 m from the lowest sphere to the highest one. From the video recordings it appears that the size of the luminous spots is about 1/20 to 1/10 of the size of the whole formation. Taking the smallest extension of one of the light spots on a very highly underexposed photo (taken by Mr. Ladwig), i.e. 1/20 of the group of lights, then an estimated value of 12 ± 2 m results for the diameter of a sphere.

Computer enhancement and contrast increase reveal that the edges of the spots are darker than their middle. This shows that each spot consists of exact rings having the same brightness. Therefore the objects were definitely spheres (Fig. 6).

A rough estimation of the energy or power that the lights radiated was carried out by comparing the lights with the power with which the full moon brightens the landscape at night-time. From a distance of 14 km (Trassenheide) the Y-group seemed to be as bright as the full moon, according to Mr. Ladwig. If the spectral distribution is equal to that of the moon, then the square distance law for the lightning power of the moon with 0.318 lux (corresponding to 1.8×10^3 watts/m²) yields an estimated radiated light power (L) of:

$$L = 4\pi 1,8 \cdot 10^3 (14.000)^2 \approx 4,43 \text{ MegaWatt}$$

Another estimation was derived from photographs that included houses with lights. The lights appear to have the same brightness as one of the objects in the sky. In one of the photographs, Valery Vinogradov captured lamps shining in several living rooms in an apartment house 150 m away. The brightness of the electrical light bulbs serves the purpose of comparison, since these have nearly the same relative brightness as the objects in that picture. Supposing that a light bulb and one of the luminous spheres on the photo have exactly the same brightness, and supposing that one of the lamps is equipped with 75-watt bulbs, then the light gain is about 8% and the radiation power (E) is about 6 watts. If the light bulb appears as bright as one of the objects, then the radiation power (E) of one of the objects in the sky 30 km away would be approximately:

$$E = \frac{6 \cdot (30.000)^2}{(150)^2} \approx 0,24 \text{ MegaWatt}$$

That is in the same order of magnitude as in the first estimation. A 100,000-watt floodlight bulb generates 2.5×10^5 lm.

The lightning stream produced by the Y-group of lights (B) seemed as bright as moonlight:

$$B = 0,318 (14.000)^2 \approx 623 \cdot 10^5 \text{ lm}$$

In comparison: Films and photos taken with a light stream of 20,000 lm when a 650 watt bulb is used. The group of objects had 25 times more energy. Similar observations of objects with this brightness have been recorded by other researchers (Vallée 1990).

The identification of the "Greifswald objects" is difficult because of the following details, which were seen by several independent witnesses:

- For a short time the light from the objects was extinguished. The dark objects moved to another location and switched their lights on again.
- From Mukran on the Isle of Ruegen, Mr. Mirack noticed in the vicinity of the 2 formations a halo of "many small white sparkling lights, like a firework."
- Objects repeatedly flew away from the formation, hovering at a distance for a while, returning to the formation and stopping abruptly in their original position. Seen from Mukran, the incident appeared as follows: The ring-shaped formation had luminous spheres flying in and out at irregular intervals. Mr. Minack wrote: "They sometimes seemed as large as the lights in the formation, or even brighter, and moved very fast. Since the formation emitted light balls downward, the exchange looked like a ping-pong game."
- Smaller spheres flew in and out of the Y-formation when it stood alone in the sky. This was also witnessed by Mrs. Vinogradova in Greifswald.
- Mr. Ladwig in Trassenheide, on the Isle of Usedom, observed that spheres were leaving the Y-group to both sides as well as downward. They flew about 10° away then hovered for several minutes. After that they flew back to the formation. The arrival of these objects was filmed two times by Mr. Luchterhand (Video No.4 in Klein und v. Ludwiger 1997). His video shows smaller lights approaching the Y-group. Every time the lights became invisible on the movie, they could only be seen by the eyewitnesses.
- The spheres on the movies seem to be flying with an arc velocity of $0.5^\circ/\text{sec}$, which would correspond to approximately the speed of sound. It is not clear whether the objects accelerate before they enter the formation. The witnesses reported that they came to a sudden stop upon arrival in the formation (Fig. 5).
- According to the newspaper Bild, on Aug 31, 1990, the radar screens of the NVA had not received any signal. But the former Colonel of the NVA, Mr. Mann, who was responsible for the technical installation of weapon devices, informed Mr. von Ludwiger that he heard that this appearance had been "captured."
- The former Chief Commander of the NVA Air Force, Lieutenant General Berger, did not know about the incident. He confirmed, however, that the burning duration of luminous ammunition is far less than 20 minutes and he

mentioned that neither the Russians nor the NVA had such long-burning ammunition.

- The German Air Defense Office also confirmed that such long-burning luminous ammunition is not yet available.
- At the time of the incident the pediatrician, Doctor Lueder-Stock from Rostock was nearby on his ship in the Baltic Sea when he spotted the objects. He thought that the lights were fired from Navy ships. The skeptics took these assumptions for the final explanation. In an interview with Mr. von Ludwiger, Dr. Lueder-Stock admitted that he never saw any ships, because of the darkness, but he believes that this is the explanation.
- Although the bigger TV stations in Germany transmitted reports of these appearances, no responsible party could be discovered.
- Organized skeptics believe that the company Silbermuhle produced long-burning luminous ammunition for the NVA. In a written statement by employees of that company, which is now integrated in the firm NICO (near Hamburg), it is stated, that the burning time of luminous ammunition was limited to about 10 minutes at that time.
- The German Weather Service in Greifswald did not detect any unusual appearances on radar.
- In May 1995 Dr. Aschascha, former commander of a Soviet submarine ruled out the possibility, in a talk with Mr. von Ludwiger, that the Russian Navy possesses luminous ammunition which burns longer than 10 minutes. He stated that the ignition of 14 of such expensive long-burning luminous bodies by Russians - if available - must be excluded.

There must have been several hundred witnesses. All of the witnesses interviewed reported seeing many nearby who were looking at the sky, and observing the phenomena as well.

A similar group of objects was seen and filmed from the Island of Usedom, on May 23, 1993 at about 21 p.m. This time the objects were seen for at least one hour to 90 minutes. (Fig. 7).

Only one month later a Mr. J.Ksrodski successfully filmed these lights for about 5 minutes over Mrzezyno near Kolberg, Poland, between 10:30 p.m. and 10:45 p.m. (on June 22, 1993) from the balcony of his house in a south-east direction. He used a Sony CCD F-385 E, 8 mm. Again, 10 to 12 luminous objects hovered nearly motionless in the sky. Three smaller lights were circling the formation. The video, which was sent to MUFON-CES for investigation, only shows one of the smaller objects moving down from the group very slowly (Fig. 8).

Since the cameraman did not hold his camera steady, the objects had to be centered, frame by frame, in order to render the objects in the image motionless and to observe any movements of the group members. Again, as in Greifswald, the formation rotated in clock-wise direction about the vertical axis of the figure. The objects vanished slowly as in the Greifswald case.

After the transmission of the above-mentioned TV documentation, Mr. and Mrs. Bode reported to Mr. von Ludwiger that they had both observed a similar appearance on August 13, 1994. They were on vacation in Pissuri near Limassol on Cyprus when they saw a formation like the one in Greifswald. During the night a formation of 7

lights stood motionless in the sky. A sphere left the formation "as quickly as an arrow, so that one could only see a bright line." The sphere stopped for a moment in an arc length of 20° , then flew back at the same speed, remaining in the formation. The light ball flew up, to the right and to the left. The witnesses said that the smaller objects looked like billiard balls, exchanging impulses with the formation before they flew out.

In 1999 MUFON-CES received 14 photographs more of a group of lights like that of the "Greifswald- type" which were taken in the end of June 1994 in Sassnitz on the Island of Ruegen. The group of lights slowly vanished behind the horizon. Nowhere could be seen ships of the Marine. (Fig. 9)

In all the reported cases the light objects were seen over water. But on Aug. 24, 1999 a similar group of lights appeared over Beinwil-Hirzel-Richterswil, Switzerland, at about 19 p.m. under the clouds. The witnesses observed the stationary group for 41 minutes! The main witness took a video of about 90 seconds. (Fig. 10)

The characteristics of the phenomena make it impossible to explain the appearance by military maneuvers. If the smaller objects were ammunition flying to the bright objects acting as a target, then the smaller objects would have exploded inside this group or flown through it. No one can explain, how one can stop a body in the air to zero speed without losing height. Until today nobody has come forward and claimed being the creator of these phenomena. Although different possibilities were considered, not one of them could account for all the different details reported, and nobody has been able to reproduce light formations like those observed near Greifswald.

Fig. 1 Position of the "Greifswald Lights" above the "Bodden" on August, 24th 1990 at 21 o'clock

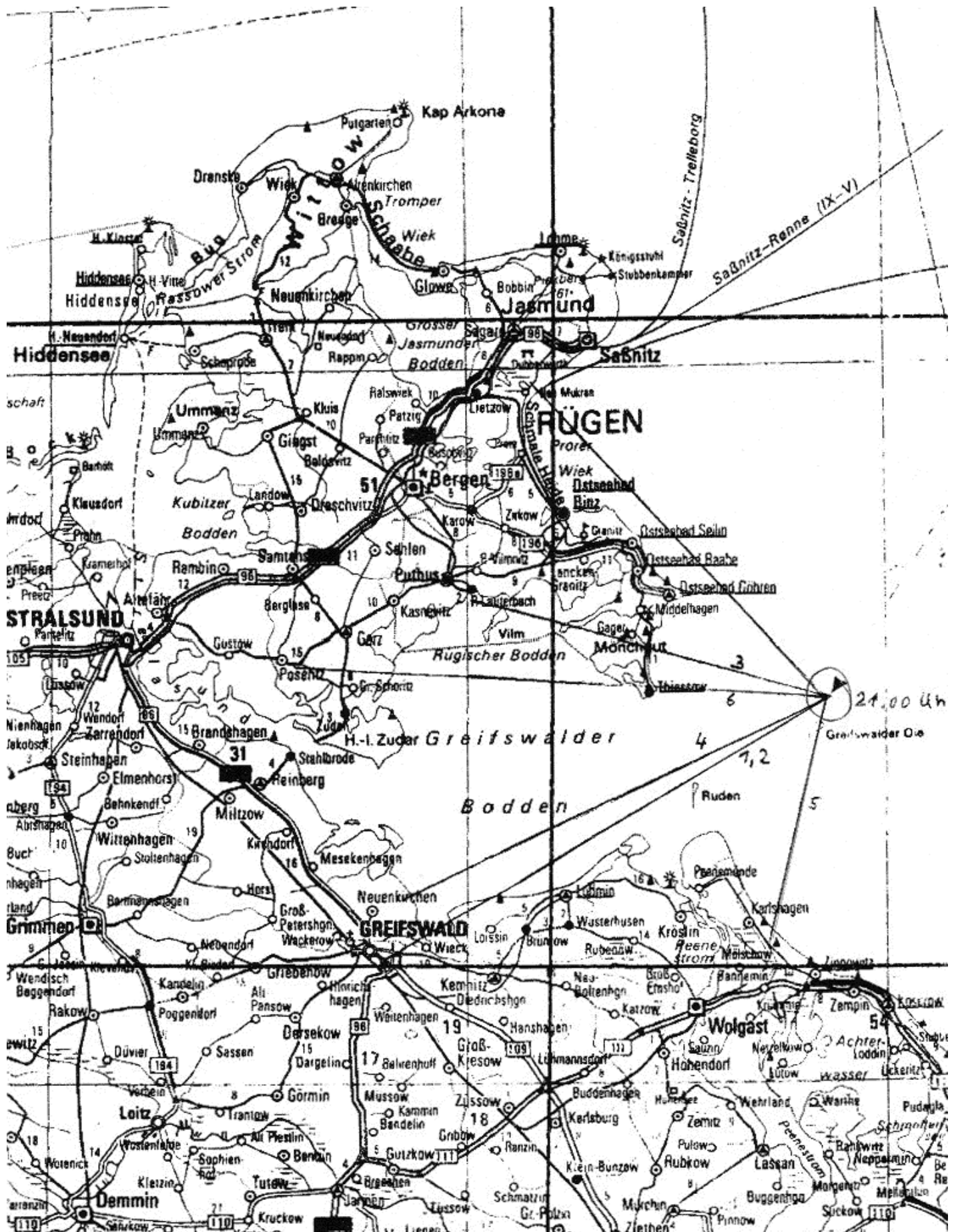


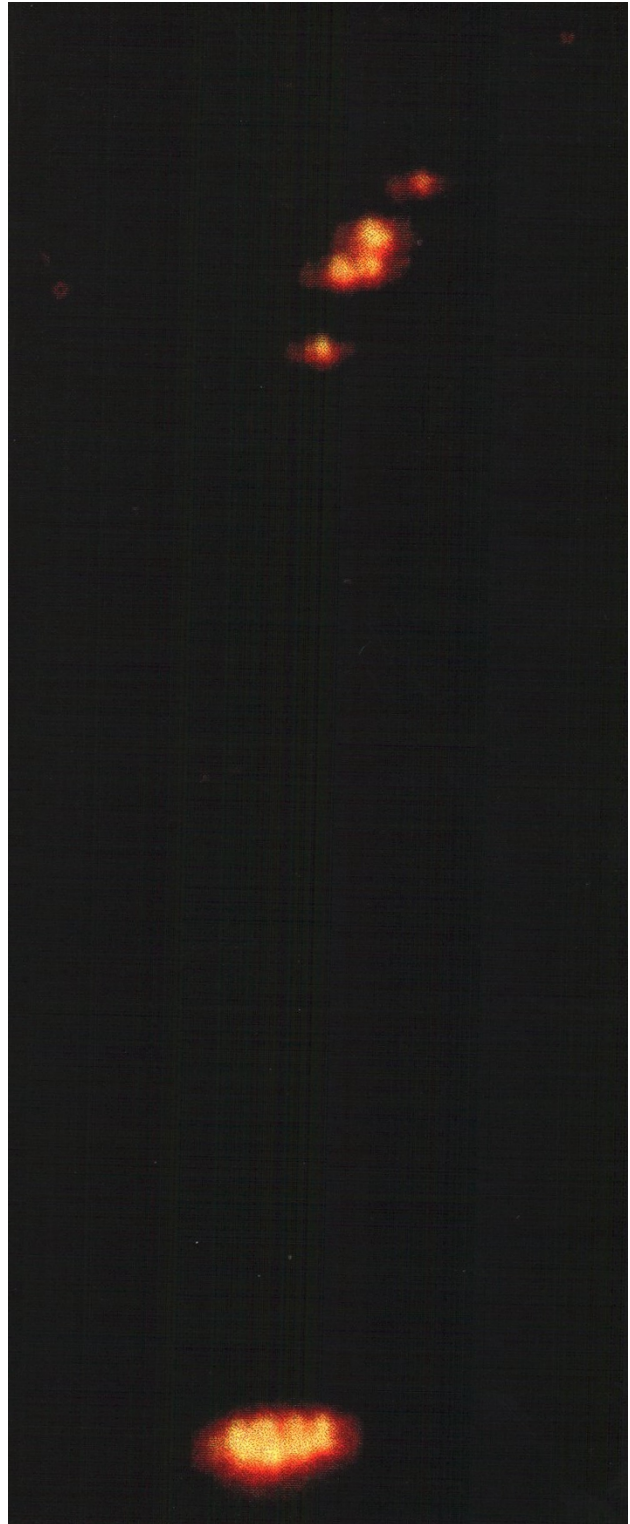
Fig. 2 Wide angle shot of the "Greifswald Lights" (August, 24th 1990)



Fig. 3 Enlargement

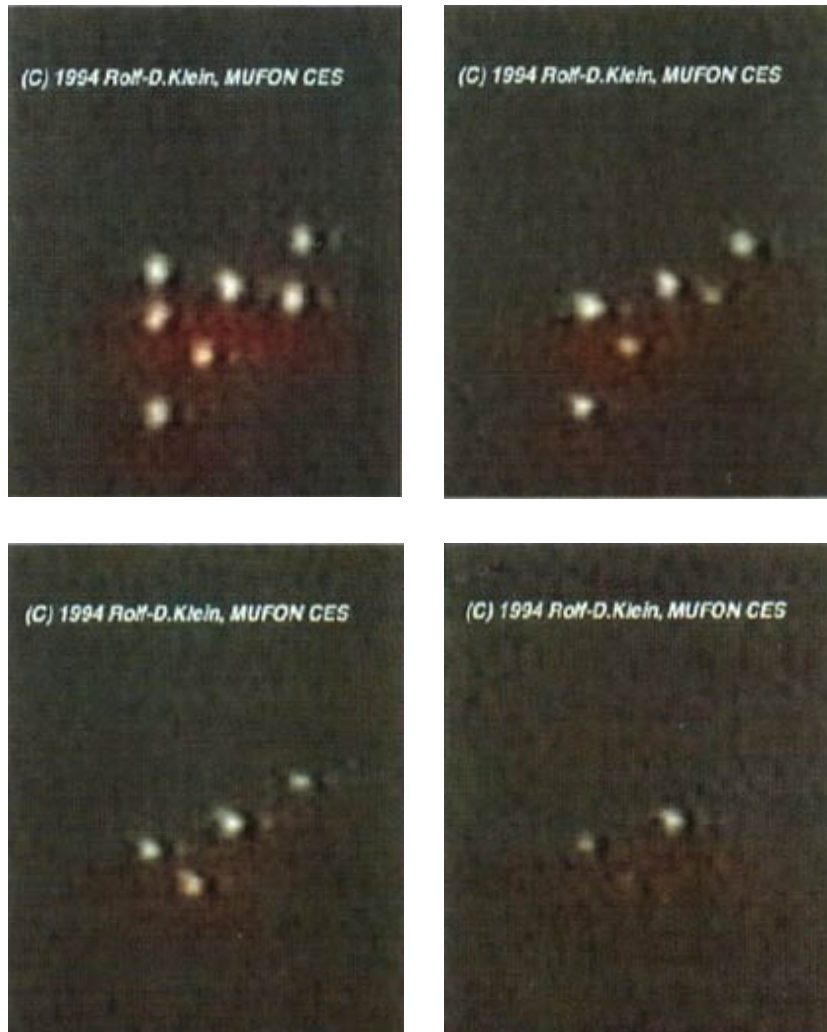


blurred image of both groups, shot from
Trassenheide



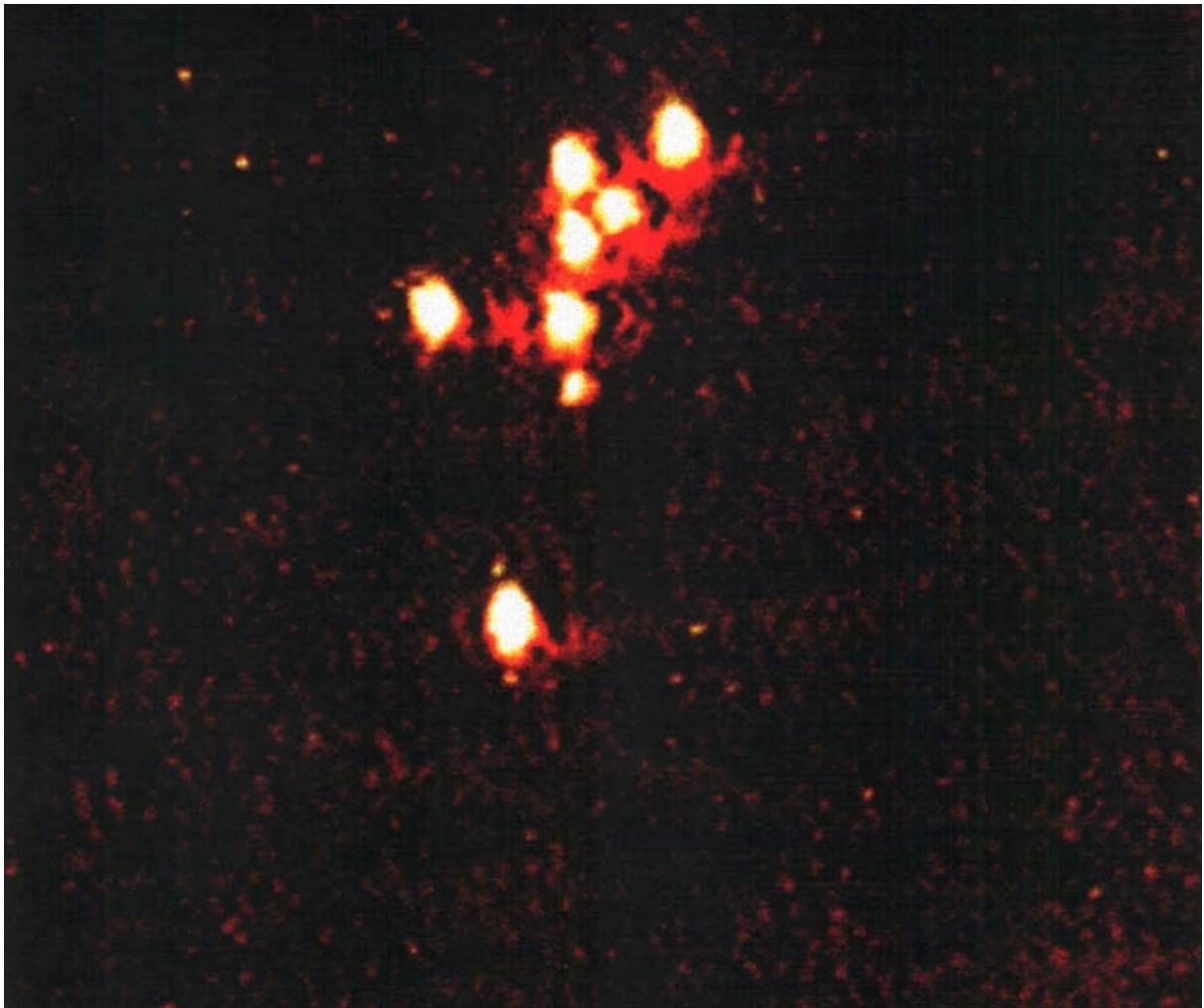
computer generated blur reduction of the
same image

Fig. 4 The Y-group disappears around 21 o'clock



Frames from the blur reduced Greifswald video 4. The objects slowly disappear, their form does not change significantly.

Fig. 5 Frames from the TV Rügen-Film

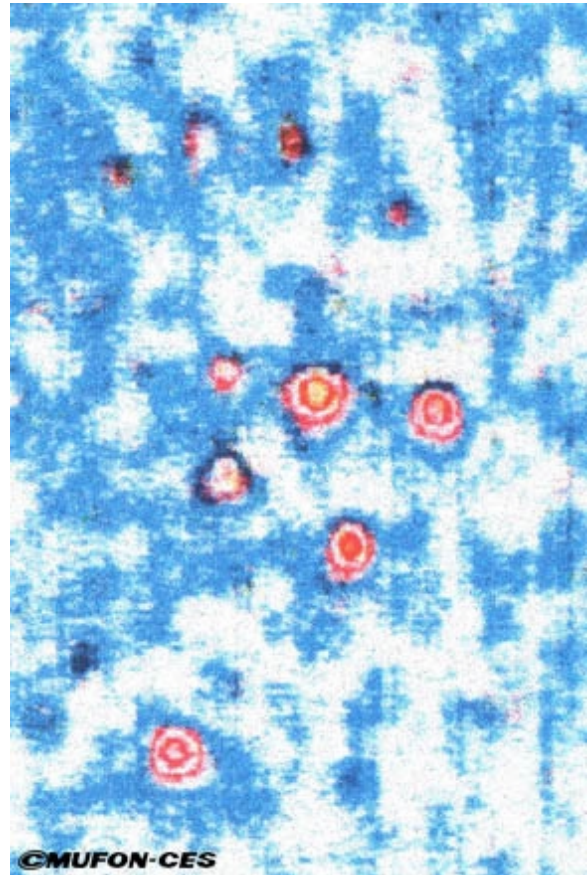
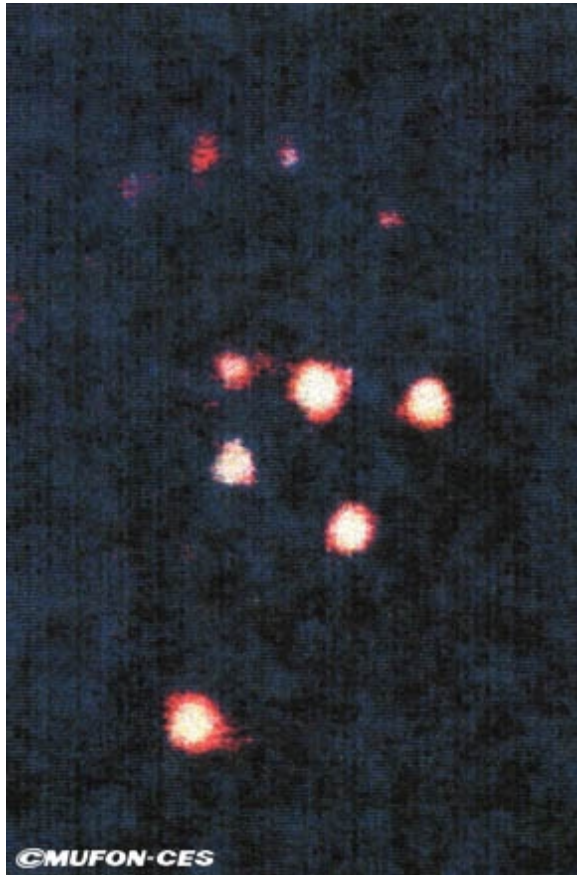


This enlargement from video 6 (recorded by Thiessow) shows the seven objects of the Y-group plus a small ball, that just entered the group



Average after multiple computer generated addition shows, that the objects in video 6 are surrounded by luminous clouds

Fig. 6 Form of individual objects



Lines of same brightness indicate that the objects are balls

Fig. 7 Foto of a formation, that looked almost like the Greifswald 1990 formation, recorded Mai, 23rd 1993 from the Isle of Usedom

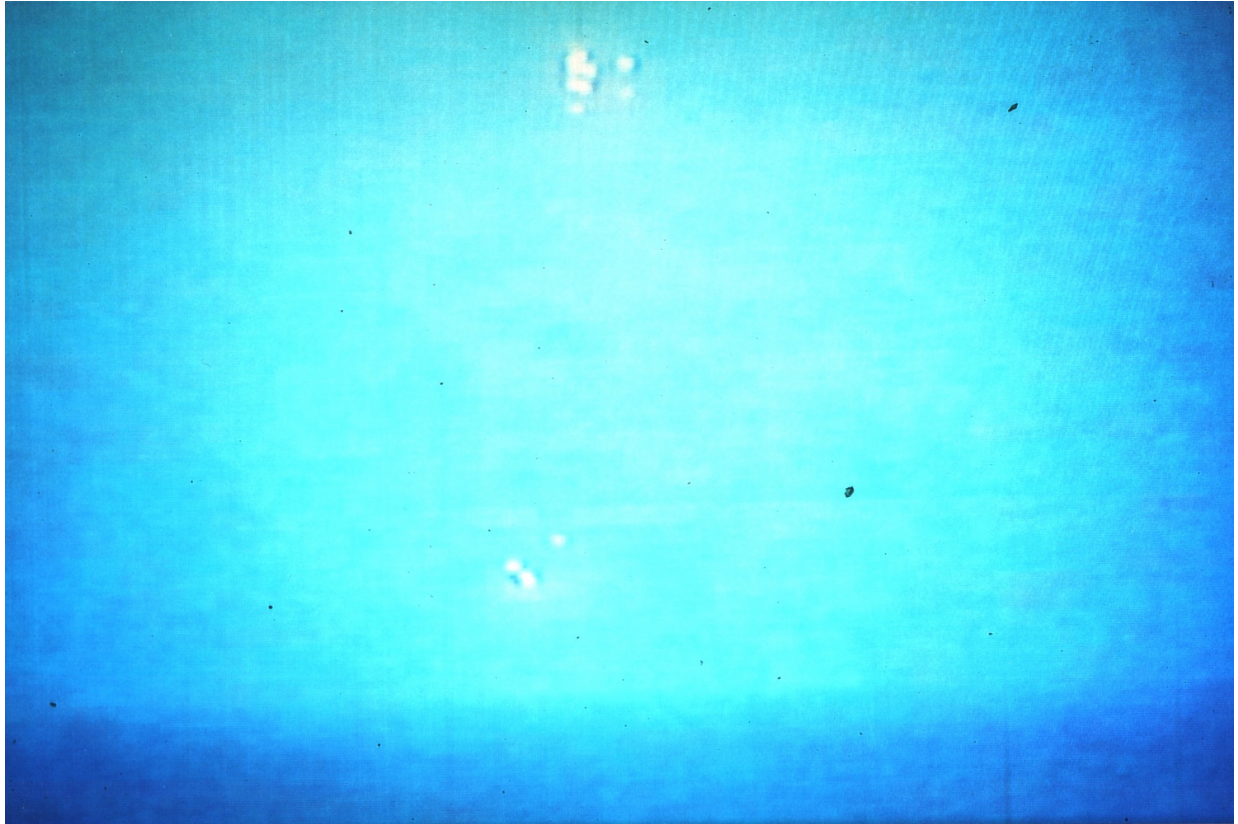


Fig. 8 A similar object group, recorded June, 22nd 1993, between 22.30 und 22.45 o'clock above Mrzezyno near Kolberg, Poland, Baltic Sea



Mrzezyno screen shot



enlargement of the object group

Fig. 9 A "Greifswald" type light group, recorded end of June 1994 in Saßnitz, Germany



Fig. 10 A similar appearance above continent, recorded August, 24th 1999 in Beinwil-Hirzel-Richterswil, Switzerland



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