Laser beam condensation

Science, Physics

Laser Beam Condensation affiliation Laser Beam Condensation Media article In the media article, the process of condensing gas particles to liquid particles is briefly described. It argues that the productivity of the condensing process is still a dream to be achieved. Since the time of our ancestors, there have been processes aimed at formation of raining in significant volumes. However, these processes did not work, or they worked but the volume of the rainfall formed was not significant enough. The modern century saw the introduction of lasers. The potential productivity of lasers is much more promising than the other processes used in previous centuries (Zyga, 2012). The goal of achieving artificial rain is based on shooting laser beams or launching chemicals to the sky. However, these natural processes are controversial in that experts question the quality of the rain formed and the side effects of the processes. Just last year, scientists used laser beams to generate rain from relatively humid air. According to Zyga (2012), the activity was successful, but the diameter of the drops formed was 100 times lesser than the normal rain droplets. Despite the small droplets, the experiment showed that it was possible to use condensation to form rain droplets. The article also sheds light on the cost effectiveness of the process. In the article there is also the issue on the specified amount of water particles produced. The particles should neither be less or more than the specified amount. If this happens the water particles would not reach the ground and will lessen precipitation respectively. Journal article The journal article is more experiment-oriented. It focuses on the chemistry and physics behind the precipitation process. It also involves the experimental results and the interpretation of results and experimental modeling. Finally, it gives

an insight in the applicability of laser condensation and cloud seeding (Kasparian, Rohwetter, Woste, & Wolf, 2012). The physics-chemistry theory behind laser condensation revolves around six steps and processes. They include activation of atmospheric particles, ion-induced nucleation, heterogeneous nucleation, homogenous homomolecular nucleation, homogenous heteromolecular nucleation, and the thermodynamics of particle nucleation (Kasparian, Rohwetter, Woste, & Wolf, 2012). The article argues that hygroscopic seeding is the best seeding procedure. Hygroscopic seeding is supported statistically by the volume of rain it has produced during its experimental modeling. However, the efficiency of hygroscopic seeding is controversial in that it produces many particles which may, in turn, reduce precipitation (Kasparian, Rohwetter, Woste, & Wolf, 2012). According to scientists, the amount of drops formed should be specific. The droplets should neither exceed nor fall behind a specific amount. If the precipitation produces fewer drops, they will not reach the ground. If the drops formed are many, then there is a risk of reduction in precipitation. The article also shows concern about the variability of the atmosphere. This makes it difficult to detect which seeding technique is efficient enough. However, Kasparian, Rohwetter, Woste, & Wolf (2012) recommend using the laser-induced cloud seeding. In this technique it was observed that ultra short laser pulses generate more hygroscopic species. The article also suggests that all seeding procedures be tested in real scale in the atmospheric campaigns. References Kasparian, J., Rohwetter, P., Woste, L. & Wolf, J-P. (2012, February 22). Laser-assisted water condensation in the atmosphere: A step towards modulating precipitation? London: IOP

Publishing. Zyga, L. (2012). Scientists analyze potential of using lasers to make rain. Retrieved from http://phys. org/news/2012-07-scientists-potential-lasers. html.