

## Curriculum Vitae

Name, title: Sanna Alwmark, PhD

Year of birth: 1986

Sex: Female

Nationality: Swedish

Civil status: Married, three children born -12, -14, and -17

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### WORK EXPERIENCE

**Post-doctoral researcher: Department of Geology, Lund University, Niels Bohr institute, University of Copenhagen, and Natural History Museum, Copenhagen** 2018-

- International postdoc scholarship from the Swedish Research Council.
- Mastcam-Z postdoc collaborator, NASA Mars 2020 science team member.
- Mars 2020 strategic planning process group member of groups “Crater floor”, “Crater rim”, and “Outside Jezero”. During this process, we work in teams to establish the concrete scientific questions to answer during the mission, which locations to visit, and what samples to collect.
- *On parental leave 25% since Sept. 1 2019, before that 50% (start Dec. 1 2018) and before that 100% since starting the position March 1 2018.*

**Field coordinator WSP Malmö** 2017-2018

**Expert reviewer for Geologica Consult** 2017

- Reviewer and editor for a report/application concerning geopark Siljan.

**Scientist/doctoral candidate, Lund University** 2009-2017

- *Parental leave 2 x 1.5 years.*

**Student ambassador, Lund University** 2007-2008

### EDUCATION

**Doctoral studies, Lund University** 2009-2016

- Subject: Geobiosphere science. Thesis title: Terrestrial consequences of hypervelocity impact – Shock metamorphism, shock barometry, and newly discovered impact structures. Thesis advisor: Prof. Ulf Söderlund.

**Geology program, Lund University** 2005-2008

### THESIS SUPERVISION AND TEACHING

- Principal advisor for four bachelor thesis projects. Assistant advisor for two bachelor thesis projects. Principal advisor for one ongoing master thesis project. Assistant advisor for one ongoing master thesis project.

- Appr. 900 clock hours as teacher (lectures, labs, and excursions). Currently teaching Master level students on cosmochemistry at Lund University.

### **COMISSIONS OF TRUST**

**Representative on the board of the Department of Geology, Lund University** 2012-2016

**Secretary, Geologic Field Club of Lund** 2009-2010

- In charge of administration.

**Student representative on the board of the Department of Geology** 2007-2008

**The Festivities Committee, Geologic Field Club of Lund** 2008

- Organizer of social gatherings after club meetings. In charge of purchases and administration.

### **PROFESSIONAL MERITS**

- Research grants amounting to 3 230 000 SEK.
- Participation in Lund University Mentoring for Change program 2018-2019. The program is part of the science faculty's strategic work towards gender equality.
- Awarded the Barringer student award (The Barringer Family Fund for Meteorite Impact Research).
- Guest researcher at ETH Zürich 2010-2011.
- Passionate about public outreach. **Popular lectures:** E.g., 2020: Folkuniversitetet Osby library "why did the dinosaurs become extinct". 2019: Naturum Siljansnäs, Universeum (Western Sweden space week), library lectures with theme "threat from space". 2018: Astronomy day and night, Lund, Tycho Brahe sällskapet, the geology of Mars, Research Friday (Lund University).
- Invited lecturer to Köpenhamns Folkeuniversitet September 2019 with two lectures on the formation on the Moon. Invited lectures at the Department of Physics and Astronomy (Uppsala University, 2017), Natural History Museum (Berlin, 2011), and Department of Geochemistry and Petrology (ETH Zürich, 2011).
- Media highlights: Summer profile in Populär Astronomi (2/2018). Whole page in Sydsvenskan July 20 2019. Regularly interviewed on topics concerning cosmochemistry, Mars, and impacts with TT, SR, and SVT.
- Organizer for conference session (Nordic Geologic Wintermeeting 2014). Conference session chair (Annual Meeting of the Meteoritical Society 2016). Organizer for international workshop "Impact cratering and beyond", held in Lund December 1, 2016.
- Peer-review: Meteoritics & Planetary Science, Nature Communications, Minerals.
- Excursion guide Siljan 2019 (for conference "Impacts and their role in the Evolution of Life - Tällberg").

## **PUBLICATION LIST**

### **1. Peer-reviewed scientific publications**

- **Holm-Alwmark S.**, 2020: Impact structures in Sweden: A review. Geological Society of America Special Publications. Accepted for publication.
- **Holm-Alwmark S.**, Alwmark C., Ferrière, L., Lindström, S., Meier, M. M. M., Scherstén A., Herrmann M., Masaitis, V. L., Mashchak, M. S., Naumov, M. V. & Jourdan, F., 2019: An Early Jurassic age for the Puchezh-Katunki impact structure (Russia) based on <sup>40</sup>Ar/<sup>39</sup>Ar data and palynology. *Meteoritics & Planetary Science* 54:1764-1780.
- **Holm-Alwmark S.**, Ferrière L., Alwmark C., and Poelchau M. H., 2018: Estimating average shock pressures recorded by impactite samples based on universal stage investigations of planar deformation features in quartz - Sources of error and recommendations. *Meteoritics & Planetary Science* 53:110-130.
- **Holm-Alwmark S.**, Rae A. S. P., Ferrière L., Alwmark C., and Collins G. S., 2017: Combining shock barometry with numerical modeling: Insights into complex crater formation – The example of the Siljan impact structure (Sweden). *Meteoritics & Planetary Science* 52:2521-2549.
- Meier M.M.M., and **Holm-Alwmark S.**, 2017: A tale of clusters: No resolvable periodicity in the terrestrial impact cratering record. *Monthly Notices of the Royal Astronomical Society* 467:2545-2551.
- Alwmark C., Ferrière L., **Holm-Alwmark S.**, Ormö J., Leroux H., and Sturkell E., 2015: Impact origin for the Hummeln structure (Sweden) and its link to the Ordovician disruption of the L chondrite parent body. *Geology* 43:279-282.
- Alwmark C., **Holm-Alwmark S.**, Ormö J., and Sturkell E., 2014: Shocked quartz grains from the Målingen structure, Sweden - Evidence for a twin crater of the Lockne impact structure. *Meteoritics & Planetary Science* 49:1076-1082.
- Gnos E., Hofmann B.A., Halawani M.A., Tarabulsi Y., Hakeem M., Al Shanti M., Greber N.D., **Holm S.**, Alwmark C., Greenwood R.C., and Ramseyer K., 2013: The Wabar impact craters, Saudi Arabia, revisited. *Meteoritics & Planetary Science* 48:2000-2014.
- **Holm S.**, Alwmark C., Alvarez W., and Schmitz B., 2011: Shock barometry of the Siljan impact structure, Sweden. *Meteoritics & Planetary Science* 46:1888-1909.
- Alwmark C., Schmitz B., **Holm S.**, Marone F., and Stampanoni M., 2011: A 3-D study of mineral inclusions in chromite from ordinary chondrites using synchrotron radiation x-ray tomographic microscopy - method and applications. *Meteoritics & Planetary Science* 46:1071-1081.

### **2. Peer-reviewed conference contributions (selection)**

- **Holm-Alwmark S.** Shock metamorphic features in minerals other than quartz in Dala granites from the Siljan impact structure (Sweden). Impacts and their role in the evolution of life, Tällberg 2019.
- Ferrière L., Alwmark C., **Holm-Alwmark S.**, Leroux H., Koeberl C., 2018: Finding, Characterization, and Significance of Shocked Quartz Grains. 81st Annual Meeting of The Meteoritical Society, Abstract #6274.
- **Holm-Alwmark S.**, Rae A.S.P., Ferrière L., Alwmark C., and Collins G.S., 2016: On the formation of the Siljan impact structure (Sweden) – Combining shock barometry with numerical modeling. 79th Annual Meeting of the Meteoritical Society, abstract #6072.
- **Holm-Alwmark S.**, Alwmark C., Lindström S., Ferrière L., Scherstén A., Masaitis V.L., Mashchak M.S., and Naumov M.V., 2016: An early Jurassic 40Ar/39Ar age for the Puchezh-

Katunki impact structure (Russia) – No causal link to an extinction event. 79th Annual Meeting of the Meteoritical Society, abstract #6171.

- Ferrière L., **Holm-Alwmark S.**, Alwmark C., and Stehlik H., 2016: From shock to impact metamorphism – Discovery of melt-bearing breccias and impact melt veins at the Hummeln impact structure (Sweden). 79th Annual Meeting of the Meteoritical Society, abstract #6379.
- Ferrière L., Alwmark C., **Holm-Alwmark S.**, Ormö J., Leroux H., and Sturkell E., 2015: The Hummeln Structure (Sweden) — Impact Origin Confirmed and Its Link to the L-Chondrite Parent Body Break-Up Event. 46th Lunar and Planetary Science Conference, Abstract #1758.
- Ferrière L., Alwmark C., and **Holm-Alwmark S.**, 2015: Why to Search for New Impact Craters on Earth? Example of the Recently Confirmed Hummeln Impact Structure (Sweden). Bridging the Gap III: Impact Cratering in Nature, Experiments, and Modeling, Abstract #1008.
- Alwmark C., Ferrière L., Hofmann B.A., **Holm-Alwmark S.**, and Meier M. M. M., 2015: On the Impact Origin of the Anomalous "Blockhorizont" Layer in Eastern Switzerland. Bridging the Gap III: Impact Cratering in Nature, Experiments, and Modeling, Abstract #1005.
- **Holm S.**, and Ferrière L., 2014: Shock-induced deformations in feldspar grains from Siljan impactites (Sweden). Abstract presented at the 31st Nordic Geological Winter Meeting.
- Alwmark C., **Holm S.**, Ormö J., and Sturkell E., 2013: Shocked Quartz in the Målingen Structure — Evidence for a Small Twin Crater to the Lockne Impact Structure. 44th Lunar and Planetary Science Conference, Abstract #2100.
- Alwmark C., **Holm S.**, Meier M.M.M., and Hofmann B.A., 2012: A study of shocked quartz in distal Ries ejecta from eastern Switzerland. 43rd Lunar & Planetary Science Conference, abstract #1827.
- **Holm S.**, Ferrière L., and Alwmark C., 2012: A statistical study of shocked quartz grains from the Siljan impact structure (Sweden) – Horizontal versus vertical c-axes. 43rd Lunar & Planetary Science Conference, abstract #1846.
- **Holm S.**, and Schmitz B., 2010: A detailed study of micrometeorite and heavy mineral distribution across the mid-Ordovician Täljsten event. Paneth Kolloquium Nördlingen 2010, abstract # 25.

### 3. Books

- **Alwmark S.**, 2016: Terrestrial consequences of hypervelocity impact – Shock metamorphism, shock barometry, and newly discovered impact structures. Doctoral thesis. Media-Tryck, Lund. 138 p.

### 4. Popular scientific publications

- **Mastcam-Z team**, 2020: Perseverance Rover Scientists Make Plans for Mars. <https://www.planetary.org/articles/perseverance-rover-scientists-make-plans>.
- **Alwmark S.**, 2019: Kosmisk kollision bildade sjön Hummeln. Svenska astronomiska sällskapet 100 år blogginlägg #27. 100.astronomiska.se.
- **Alwmark S.**, and Meier M., 2017: Could asteroids bombard the Earth to cause a mass extinction in ten million years? Theconversation.com, June 22nd.
- **Alwmark S.**, 2017: Jakten efter nedslagskratrar på Jorden. Geologiskt Forum Nr. 93:24-27.

### 5. Manuscripts in review:

- Martell J., Alwmark C., **Holm-Alwmark S.**, and Lindgren P: Shock deformation in zircon grains from the Mien impact structure, Sweden. Submitted to Meteoritics & Planetary Science.

- Herrmann M., Söderlund U., Scherstén A., Naeraa T., **Holm-Alwmark S.**, and Alwmark C: The effect of low-temperature annealing on discordance of U-Pb zircon ages. Submitted to Scientific Reports.

Note:

I publish under the name Sanna Holm-Alwmark. On publications before 2013 my name is Sanna Holm (my maiden name). Now I use both my maiden name and my married name to tie earlier work to my present and future publications.