

## Short presentation

Exploring Mars as a member of the ongoing NASA Mars missions: Mars Science Laboratory (Curiosity rover) and Mars 2020 (Perseverance rover).

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## Research outputs

### **Sedimentology and Stratigraphy of the Shenandoah Formation, Western Fan, Jezero Crater, Mars**

Stack, K. M., Ives, L. R. W., Gupta, S., Lamb, M. P., Tebolt, M., Caravaca, G., Grotzinger, J. P., Russell, P., Shuster, D. L., Williams, A. J., Amundsen, H., Alwmark, S., Annex, A. M., Barnes, R., Bell, J., Beyssac, O., Bosak, T., Crumpler, L. S., Dehouck, E., Gwizd, S. J. & 23 others, Hickman-Lewis, K., Horgan, B. H. N., Hurowitz, J., Kalucha, H., Kanine, O., Lesh, C., Maki, J., Mangold, N., Randazzo, N., Seeger, C., Williams, R. M. E., Brown, A., Cardarelli, E., Dypvik, H., Flannery, D., Frydenvang, Jens, Hamran, S., Núñez, J. I., Paige, D., Simon, J. I., Tice, M., Tate, C. & Wiens, R. C., 2024, In: *Journal of Geophysical Research: Planets*. 129, 2, 42 p., e2023JE008187.

### **Askival: An altered feldspathic cumulate sample in Gale crater**

Bowden, D. L., Bridges, J. C., Cousin, A., Rapin, W., Semprich, J., Gasnault, O., Forni, O., Gasda, P., Das, D., Payré, V., Sautter, V., Bedford, C. C., Wiens, R. C., Pinet, P. & Frydenvang, Jens, 2023, In: *Meteoritics and Planetary Science*. 58, 1, p. 41-62 22 p.

### **Compositional Variations in Sedimentary Deposits in Gale Crater as Observed by ChemCam Passive and Active Spectra**

Manelski, H. T., Sheppard, R. Y., Fraeman, A. A., Wiens, R. C., Johnson, J. R., Rampe, E. B., Frydenvang, Jens, Lanza, N. L. & Gasnault, O., 2023, In: *Journal of Geophysical Research: Planets*. 128, 3, 19 p., e2022JE007706.

### **Detection of Copper by the ChemCam Instrument Along Curiosity's Traverse in Gale Crater, Mars: Elevated Abundances in Glen Torridon**

Goetz, W., Dehouck, E., Gasda, P. J., Johnson, J. R., Meslin, P., Lanza, N. L., Wiens, R. C., Rapin, W., Frydenvang, Jens, Payré, V. & Gasnault, O., 2023, In: *Journal of Geophysical Research: Planets*. 128, 3, 23 p., e2021JE007101.

### **Aqueously altered igneous rocks sampled on the floor of Jezero crater, Mars**

Farley, K. A., Stack, K. M., Shuster, D. L., Horgan, B. H. N., Hurowitz, J. A., Tarnas, J. D., Simon, J. I., Sun, V. Z., Scheller, E. L., Moore, K. R., McLennan, S. M., Vasconcelos, P. M., Wiens, R. C., Treiman, A. H., Mayhew, L. E., Beyssac, O., Kizovski, T. V., Tosca, N. J., Williford, K. H., Crumpler, L. S. & 94 others, Beegle, L. W., Bell, J. F., Ehlmann, B. L., Liu, Y., Maki, J. N., Schmidt, M. E., Allwood, A. C., Amundsen, H. E. F., Bhartia, R., Bosak, T., Brown, A. J., Clark, B. C., Cousin, A., Forni, O., Gabriel, T. S. J., Goreva, Y., Gupta, S., Hamran, S., Herd, C. D. K., Hickman-Lewis, K., Johnson, J. R., Kah, L. C., Kelemen, P. B., Kinch, K., Kjaran Münster, Mandon, L., Mangold, N., Quantin-Nataf, C., Rice, M. S., Russell, P. S., Sharma, S., Siljeström, S., Steele, A., Sullivan, R., Wadhwa, M., Weiss, B. P., Williams, A. J., Wogsland, B. V., Willis, P. A., Acosta-Maeda, T. A., Beck, P., Benzerara, K., Bernard, S., Burton, A. S., Cardarelli, E. L., Chide, B., Clavé, E., Cloutis, E. A., Cohen, B. A., Czaja, A. D., Debaille, V., Dehouck, E., Fairén, A. G., Flannery, D. T., Fleron, S. Z., Fouchet, T., Frydenvang, Jens, Garczynski, B. J., Gibbons, E. F., Hausrath, E. M., Hayes, A. G., Henneke, J., Jørgensen, J. L., Kelly, E. M., Lasue, J., Le Mouélic, S., Madariaga, J. M., Maurice, S., Merusi, M., Meslin, P., Milkovich, S. M., Million, C. C., Moeller, R. C., Nuñez, J. I., Ollila, A. M., Paar, G., Paige, D. A., Pedersen, D. A. K., Pilleri, P., Pilorget, C., Pinet, P. C., Rice, J. W., Royer, C., Sautter, V., Schulte, M., Sephton, M. A., Sharma, S. K., Sholes, S. F., Spanovich, N., Clair, M. S., Tate, C. D., Uckert, K., VanBommel, S. J., Yanchilina, A. G. & Zorzano, M., 30 Sep 2022, In: *Science*. 377, 6614, 12 p., eabo2196.

### **An Insight Into Ancient Aeolian Processes and Post-Noachian Aqueous Alteration in Gale Crater, Mars, Using ChemCam Geochemical Data From the Greenheugh Capping Unit**

Bedford, C. C., Banham, S. G., Bridges, J. C., Forni, O., Cousin, A., Bowden, D., Turner, S. M. R., Wiens, R. C., Gasda, P. J., Frydenvang, Jens, Gasnault, O., Rammelkamp, K., Rivera-Hernandez, F., Rampe, E. B., Smith, R., Achilles, C., Dehouck, E., Bryk, A. B., Schwenzer, S. P. & Newsom, H., 2022, In: *Journal of Geophysical Research - Planets*. 127, 9, 37 p., e2021JE007100.

### **Bedrock Geochemistry and Alteration History of the Clay-Bearing Glen Torridon Region of Gale Crater, Mars**

Dehouck, E., Cousin, A., Mangold, N., Frydenvang, J., Gasnault, O., Forni, O., Rapin, W., Gasda, P. J., Caravaca, G., David, G., Bedford, C. C., Lasue, J., Meslin, P.-Y., Rammelkamp, K., Desjardins, M., Le Mouélic, S., Thorpe, M. T., Fox, V. K., Bennett, K. A., Bryk, A. B. & 3 others, Lanza, N. L., Maurice, S. & Wiens, R. C., 2022, In: *Journal of Geophysical Research: Planets*. 127, 12, 29 p., e2021JE007103.

### **Burial and Exhumation of Sedimentary Rocks Revealed by the Base Stimson Erosional Unconformity, Gale Crater, Mars**

Watkins, J. A., Grotzinger, J. P., Stein, N. T., Banham, S. G., Gupta, S., Rubin, D. M., Morgan, K. S., Edgett, K. S., Frydenvang, J., Siebach, K. L., Lamb, M. P., Sumner, D. Y. & Lewis, K. W., 2022, In: *Journal of Geophysical Research - Planets*. 127, 7, 15 p., e2022JE007293.

### **Compositionally and density stratified igneous terrain in Jezero crater, Mars**

Wiens, R. C., Udry, A., Beyssac, O., Quantin-Nataf, C., Mangold, N., Cousin, A., Mandon, L., Bosak, T., Forni, O., McLennan, S. M., Sautter, V., Brown, A., Benzerara, K., Johnson, J. R., Mayhew, L., Maurice, S., Anderson, R. B., Clegg, S. M., Crumpler, L., Gabriel, T. S. J. & 73 others, Gasda, P., Hall, J., Horgan, B. H. N., Kah, L., Legett, C., Madariaga, J. M., Meslin, P., Ollila, A. M., Poulet, F., Royer, C., Sharma, S. K., Siljeström, S., Simon, J. I., Acosta-Maeda, T. E., Alvarez-Llamas, C., Angel, S. M., Arana, G., Beck, P., Bernard, S., Bertrand, T., Bousquet, B., Castro, K., Chide, B., Clavé, E., Cloutis, E., Connell, S., Dehouck, E., Dromart, G., Fischer, W., Fouchet, T., Francis, R., Frydenvang, J., Gasnault, O., Gibbons, E., Gupta, S., Hausrath, E. M., Jacob, X., Kalucha, H., Kelly, E., Knutsen, E., Lanza, N., Laserna, J., Lasue, J., Le Mouélic, S., Leveille, R., Lopez-Reyes, G., Lorenz, R., Manrique, J. A., Martinez-Frias, J., McConnochie, T., Melikechi, N., Mimoun, D., Montmessin, F., Moros, J., Murdoch, N., Pilleri, P., Pilorget, C., Pinet, P., Rapin, W., Rull, F., Schröder, S., Shuster, D. L., Smith, R. J., Stott, A. E., Tarnas, J., Turenne, N., Veneranda, M., Vogt, D. S., Weiss, B. P., Willis, P., Stack, K. M., Williford, K. H. & Farley, K. A., 2022, In: *Science Advances*. 8, 34, 16 p., eabo3399.

### **In situ recording of Mars soundscape**

Farley, K., Williford, K. & the SuperCam team, T. S. T., 2022, In: *Nature*. 605, 7911, p. 653-658 6 p.

### **On an Extensive Late Hydrologic Event in Gale Crater as Indicated by Water-Rich Fracture Halos**

Gabriel, T. S. J., Hardgrove, C., Achilles, C. N., Rampe, E. B., Rapin, W. N., Nowicki, S., Czarnecki, S., Thompson, L., Nikiforov, S., Litvak, M., Mitrofanov, I., Lisov, D., Frydenvang, J., Yen, A., Wiens, R. C., Treiman, A. & McAdam, A., 2022, In: *Journal of Geophysical Research: Planets*. 127, 12, 21 p., e2020JE006600.

### **Overview of the Morphology and Chemistry of Diagenetic Features in the Clay-Rich Glen Torridon Unit of Gale Crater, Mars**

Gasda, P. J., Comellas, J., Essunfeld, A., Das, D., Bryk, A. B., Dehouck, E., Schwenzer, S. P., Crossey, L., Herkenhoff, K., Johnson, J. R., Newsom, H., Lanza, N. L., Rapin, W., Goetz, W., Meslin, P.-Y., Bridges, J. C., Anderson, R., David, G., Turner, S. M. R., Thorpe, M. T. & 16 others, Kah, L., Frydenvang, J., Kronyak, R., Caravaca, G., Ollila, A., Le Mouélic, S., Nellessen, M., Hoffman, M., Fey, D., Cousin, A., Wiens, R. C., Clegg, S. M., Maurice, S., Gasnault, O., Delapp, D. & Reyes-Newell, A., 2022, In: *Journal of Geophysical Research: Planets*. 127, 12, 42 p., e2021JE007097.

### **Post-landing major element quantification using SuperCam laser induced breakdown spectroscopy**

Anderson, R. B., Forni, O., Cousin, A., Wiens, R. C., Clegg, S. M., Frydenvang, J., Gabriel, T. S. J., Ollila, A., Schröder, S., Beyssac, O., Gibbons, E., Vogt, D. S., Clavé, E., Manrique, J.-A., Legett, C., Pilleri, P., Newell, R. T., Sarrao, J., Maurice, S., Arana, G. & 42 others, Benzerara, K., Bernardi, P., Bernard, S., Bousquet, B., Brown, A. J., Alvarez-Llamas, C., Chide, B., Cloutis, E., Comellas, J., Connell, S., Dehouck, E., Delapp, D. M., Essunfeld, A., Fabre, C., Fouchet, T., Garcia-Florentino, C., García-Gómez, L., Gasda, P., Gasnault, O., Hausrath, E. M., Lanza, N. L., Laserna, J., Lasue, J., Lopez, G., Madariaga, J. M., Mandon, L., Mangold, N., Meslin, P., Nelson, A. E., Newsom, H., Reyes-Newell, A. L., Robinson, S., Rull, F., Sharma, S., Simon, J. I., Sobron, P., Fernandez, I. T., Udry, A., Venhaus, D., McLennan, S. M., Morris, R. V. & Ehlmann, B., 2022, In: *Spectrochimica Acta - Part B Atomic Spectroscopy*. 188, 33 p., 106347.

### **Brine-driven destruction of clay minerals in Gale crater, Mars**

Bristow, T. F., Grotzinger, J. P., Rampe, E. B., Cuadros, J., Chipera, S. J., Downs, G. W., Fedo, C. M., Frydenvang, J., McAdam, A. C., Morris, R. V., Achilles, C. N., Blake, D. F., Castle, N., Craig, P., Marais, D. J. D., Downs, R. T., Hazen, R. M., Ming, D. W., Morrison, S. M., Thorpe, M. T. & 13 others, Treiman, A. H., Tu, V., Vaniman, D. T., Yen, A. S., Gellert, R., Mahaffy, P. R., Wiens, R. C., Bryk, A. B., Bennett, K. A., Fox, V. K., Milliken, R. E., Fraeman, A. A. & Vasavada, A. R., 2021, In: *Science*. 373, 6551, p. 198-204

### **Improving ChemCam LIBS long-distance elemental compositions using empirical abundance trends**

Wiens, R. C., Blazon-Brown, A. J., Melikechi, N., Frydenvang, Jens, Dehouck, E., Clegg, S. M., Delapp, D., Anderson, R. B., Cousin, A. & Maurice, S., 2021, In: *Spectrochimica Acta - Part B Atomic Spectroscopy*. 182, 18 p., 106247.

### **Quantification of manganese for ChemCam Mars and laboratory spectra using a multivariate model**

Gasda, P. J., Anderson, R. B., Cousin, A., Forni, O., Clegg, S. M., Ollila, A., Lanza, N., Frydenvang, Jens, Lamm, S., Wiens, R. C., Maurice, S., Gasnault, O., Beal, R., Reyes-Newell, A. & Delapp, D., 2021, In: *Spectrochimica Acta - Part B Atomic Spectroscopy*. 181, 13 p., 106223.

### **The SuperCam Instrument Suite on the Mars 2020 Rover: Science Objectives and Mast-Unit Description**

Maurice, S., Wiens, R. C., Bernardi, P., Cais, P., Robinson, S., Nelson, T., Gasnault, O., Reess, J. M., Deleuze, M., Rull, F., Manrique, J. A., Abbaki, S., Anderson, R. B., André, Y., Angel, S. M., Arana, G., Battault, T., Beck, P., Benzerara, K., Bernard, S. & 147 others, Berthias, J. P., Beyssac, O., Bonafous, M., Bousquet, B., Boutillier, M., Cadu, A., Castro, K., Chapron, F., Chide, B., Clark, K., Clavé, E., Clegg, S., Cloutis, E., Collin, C., Cordoba, E. C., Cousin, A., Dameury, J. C., D'Anna, W., Daydou, Y., Debus, A., Deflores, L., Dehouck, E., Delapp, D., De Los Santos, G., Donny, C., Doressoundiram, A., Dromart, G., Dubois, B., Dufour, A., Dupieux, M., Egan, M., Ervin, J., Fabre, C., Fau, A., Fischer, W., Forni, O., Fouchet, T., Frydenvang, Jens, Gauffre, S., Gauthier, M., Gharakanian, V., Gilard, O., Gontijo, I., Gonzalez, R., Granena, D., Grotzinger, J., Hassen-Khodja, R., Heim, M., Hello, Y., Hervet, G., Humeau, O., Jacob, X., Jacquino, S., Johnson, J. R., Kouach, D., Lacombe, G., Lanza, N., Lapauw, L., Laserna, J., Lasue, J., Le Deit, L., Le Mouélic, S., Le Comte, E., Lee, Q. M., Legett, C., Leveille, R., Lewin, E., Leyrat, C., Lopez-Reyes, G., Lorenz, R., Lucero, B., Madariaga, J. M., Madsen, S., Madsen, Morten Bo, Mangold, N., Manni, F., Mariscal, J. F., Martinez-Frias, J., Mathieu, K., Mathon, R., McCabe, K. P., McConnochie, T., McLennan, S. M., Mekki, J., Melikechi, N., Meslin, P., Micheau, Y., Michel, Y., Michel, J. M., Mimoun, D., Misra, A., Montagnac, G., Montaron, C., Montmessin, F., Moros, J., Mousset, V., Morizet, Y., Murdoch, N., Newell, R. T., Newsom, H., Nguyen Tuong, N., Ollila, A. M., Ortner, G., Oudda, L., Pares, L., Parisot, J., Parot, Y., Pérez, R., Pheav, D., Picot, L., Pilleri, P., Pilorget, C., Pinet, P., Pont, G., Poulet, F., Quantin-Nataf, C., Quertier, B., Rambaud, D., Rapin, W., Romano, P., Roucayrol, L., Royer, C., Ruellan, M., Sandoval, B. F., Sautter, V., Schoppers, M. J., Schröder, S., Seran, H. C., Sharma, S. K., Sobron, P., Sodki, M., Sournac, A., Sridhar, V., Standarovsky, D., Storms, S., Striebig, N., Tatat, M., Toplis, M., Torre-Fdez, I., Toulemont, N., Velasco, C., Veneranda, M., Venhaus, D., Virmondois, C., Viso, M., Willis, P. & Wong, K. W., 2021, In: *Space Science Reviews*. 217, 3, 108 p., 47.

### **The SuperCam Instrument Suite on the NASA Mars 2020 Rover: Body Unit and Combined System Tests**

Wiens, R. C., Maurice, S., Robinson, S. H., Nelson, A. E., Cais, P., Bernardi, P., Newell, R. T., Clegg, S., Sharma, S. K., Storms, S., Deming, J., Beckman, D., Ollila, A. M., Gasnault, O., Anderson, R. B., André, Y., Michael Angel, S., Arana, G., Auden, E., Beck, P. & 112 others, Becker, J., Benzerara, K., Bernard, S., Beyssac, O., Borges, L., Bousquet, B., Boyd, K., Caffrey, M., Carlson, J., Castro, K., Celis, J., Chide, B., Clark, K., Cloutis, E., Cordoba, E. C., Cousin, A., Dale, M., Deflores, L., Delapp, D., Deleuze, M., Dirmyer, M., Donny, C., Dromart, G., George Duran, M., Egan, M., Ervin, J., Fabre, C., Fau, A., Fischer, W., Forni, O., Fouchet, T., Fresquez, R., Frydenvang, Jens, Gasway, D., Gontijo, I., Grotzinger, J., Jacob, X., Jacquino, S., Johnson, J. R., Klisiewicz, R. A., Lake, J., Lanza, N., Laserna, J., Lasue, J., Le Mouélic, S., Legett, C., Leveille, R., Lewin, E., Lopez-Reyes, G., Lorenz, R., Lorigny, E., Love, S. P., Lucero, B., Madariaga, J. M., Madsen, Morten Bo, Madsen, S., Mangold, N., Manrique, J. A., Martinez, J. P., Martinez-Frias, J., McCabe, K. P., McConnochie, T. H., McGlown, J. M., McLennan, S. M., Melikechi, N., Meslin, P., Michel, J. M., Mimoun, D., Misra, A., Montagnac, G., Montmessin, F., Mousset, V., Murdoch, N., Newsom, H., Ott, L. A., Ousnamer, Z. R., Pares, L., Parot, Y., Pawluczyk, R., Glen Peterson, C., Pilleri, P., Pinet, P., Pont, G., Poulet, F., Provost, C., Quertier, B., Quinn, H., Rapin, W., Reess, J. M., Regan, A. H., Reyes-Newell, A. L., Romano, P. J., Royer, C., Rull, F., Sandoval, B., Sarrao, J. H., Sautter, V., Schoppers, M. J., Schröder, S., Seitz, D., Shepherd, T., Sobron, P., Dubois, B., Sridhar, V., Toplis, M. J., Torre-Fdez, I., Trettel, I. A., Underwood, M., Valdez, A., Valdez, J., Venhaus, D. & Willis, P., 2021, In: *Space Science Reviews*. 217, 87 p., 4.

### **Diagenesis of Vera Rubin Ridge, Gale Crater, Mars, From Mastcam Multispectral Images**

Horgan, B. H. N., Johnson, J. R., Fraeman, A. A., Rice, M. S., Seeger, C., Bell, J. F., Bennett, K. A., Cloutis, E. A., Edgar, L. A., Frydenvang, Jens, Grotzinger, J. P., L'Haridon, J., Jacob, S. R., Mangold, N., Rampe, E. B., Rivera-Hernandez, F., Sun, V. Z., Thompson, L. M. & Wellington, D., Nov 2020, In: *Journal of Geophysical Research: Planets*. 125, 11, 33 p., e2019JE006322.

### **Identification and Description of a Silicic Volcaniclastic Layer in Gale Crater, Mars, Using Active Neutron Interrogation**

Czarnecki, S., Hardgrove, C., Gasda, P. J., Gabriel, T. S. J., Starr, M., Rice, M. S., Frydenvang, Jens, Wiens, R. C., Rapin, W., Nikiforov, S., Lisov, D., Litvak, M., Calef, F., Gengl, H., Newsom, H. E., Thompson, L. & Nowicki, S., 1 Mar 2020, In: *Journal of Geophysical Research: Planets*. 125, 3, 20 p., e2019JE006180.

### **Boron and Lithium in Calcium Sulfate Veins: Tracking Precipitation of Diagenetic Materials in Vera Rubin Ridge, Gale Crater**

Das, D., Gasda, P. J., Wiens, R. C., Berlo, K., Leveille, R. J., Frydenvang, Jens, Mangold, N., Kronyak, R. E., Schwenzer, S. P., Forni, O., Cousin, A., Maurice, S. & Gasnault, O., 2020, In: Journal of Geophysical Research: Planets. 125, 8, 21 p., e2019JE006301.

### **Evidence for a Diagenetic Origin of Vera Rubin Ridge, Gale Crater, Mars: Summary and Synthesis of Curiosity's Exploration Campaign**

Fraeman, A. A., Edgar, L. A., Rampe, E. B., Thompson, L. M., Frydenvang, J., Fedo, C. M., Catalano, J. G., Dietrich, W. E., Gabriel, T. S. J., Vasavada, A. R., Grotzinger, J. P., L'Haridon, J., Mangold, N., Sun, V. Z., House, C. H., Bryk, A. B., Hardgrove, C., Czarnecki, S., Stack, K. M., Morris, R. V. & 23 others, Arvidson, R. E., Banham, S. G., Bennett, K. A., Bridges, J. C., Edwards, C. S., Fischer, W. W., Fox, V. K., Gupta, S., Horgan, B. H. N., Jacob, S. R., Johnson, J. R., Johnson, S. S., Rubin, D. M., Salvatore, M. R., Schwenzer, S. P., Siebach, K. L., Stein, N. T., Turner, S. M. R., Wellington, D. F., Wiens, R. C., Williams, A. J., David, G. & Wong, G. M., 2020, In: Journal of Geophysical Research: Planets. 125, 12, 34 p., e2020JE006527.

### **Geochemical variation in the Stimson formation of Gale crater: Provenance, mineral sorting, and a comparison with modern Martian dunes**

Bedford, C. C., Schwenzer, S. P., Bridges, J. C., Banham, S., Wiens, R. C., Gasnault, O., Rampe, E. B., Frydenvang, Jens & Gasda, P. J., 2020, In: Icarus. 341, 22 p., 113622.

### **Hydrogen Variability in the Murray Formation, Gale Crater, Mars**

Thomas, N. H., Ehlmann, B. L., Rapin, W., Rivera-hernández, F., Stein, N. T., Frydenvang, Jens, Gabriel, T., Meslin, P. -, Maurice, S. & Wiens, R. C., 2020, In: Journal of Geophysical Research: Planets. 125, 9, p. 1-13

### **Iron Mobility During Diagenesis at Vera Rubin Ridge, Gale Crater, Mars**

L'Haridon, J., Mangold, N., Fraeman, A. A., Johnson, J. R., Cousin, A., Rapin, W., David, G., Dehouck, E., Sun, V., Frydenvang, J., Gasnault, O., Gasda, P., Lanza, N., Forni, O., Meslin, P. Y., Schwenzer, S. P., Bridges, J., Horgan, B., House, C. H., Salvatore, M. & 2 others, Maurice, S. & Wiens, R. C., 2020, In: Journal of Geophysical Research: Planets. 125, 11, 24 p., e2019JE006299.

### **Origin and composition of three heterolithic boulder- and cobble-bearing deposits overlying the Murray and Stimson formations, Gale Crater, Mars**

Wiens, R. C., Edgett, K. S., Stack, K. M., Dietrich, W. E., Bryk, A. B., Mangold, N., Bedford, C., Gasda, P., Fairen, A., Thompson, L., Johnson, J., Gasnault, O., Clegg, S., Cousin, A., Forni, O., Frydenvang, J., Lanza, N., Maurice, S., Newsom, H., Ollila, A. & 3 others, Payré, V., Rivera-Hernandez, F. & Vasavada, A., 2020, In: Icarus. 350, 38 p., 113897.

### **The Chemostratigraphy of the Murray Formation and Role of Diagenesis at Vera Rubin Ridge in Gale Crater, Mars, as Observed by the ChemCam Instrument**

Frydenvang, J., Mangold, N., Wiens, R. C., Fraeman, A. A., Edgar, L. A., Fedo, C. M., L'Haridon, J., Bedford, C. C., Gupta, S., Grotzinger, J. P., Bridges, J. C., Clark, B. C., Rampe, E. B., Gasnault, O., Maurice, S., Gasda, P. J., Lanza, N. L., Ollila, A. M., Meslin, P. Y., Payré, V. & 3 others, Calef, F., Salvatore, M. & House, C. H., 2020, In: Journal of Geophysical Research: Planets. 125, 9, p. 1-21 e2019JE006320.

### **METHOD AND DEVICE FOR DETERMINING A NUTRITIONAL STATE OF A PLANT**

Carstensen, A., Frydenvang, Jens, van Maarschalkerweerd, M. & Husted, Søren, 25 Sep 2019, IPC No. G01N 21/64 (2006.01), G01N 21/84 (2006.01), Patent No. PCT/EP2013/069899, 25 Sep 2013, Priority date 25 Sep 2013

### **Chemical alteration of fine-grained sedimentary rocks at Gale crater**

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